

**THE MONETARY ECONOMY OF THE EASTERN
MEDITERRANEAN, FROM TRAJAN TO GALLIENUS**

Volume I

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ABSTRACT

Although the third century has been characterised by modern scholars as a period of crisis from which only a few historical data have survived, I have been able to establish that the numismatic evidence found at excavated sites or in coin hoards is adequate for a detailed examination of the monetary system, its changes and its effect on the circulation of coinage and the use of money in the eastern part of the Roman Empire. Unpublished material from seven museums in Greece and four museums in Turkey completes the picture, which shows that the circulation of bronze coinage was highly localised, since we rarely find coins away from the province of their production. In some cases, the pattern of the circulation of silver coinage also has localised characteristics.

There is also evidence that indicates that, while the production of money was motivated by the political and military needs of the emperor, the wider use of coinage was promoted by a range of social elements that were involved, one way or another, with the local or inter-regional markets. Alterations of any of these factors could affect the circulation of coinage, the monetization of the empire and would eventually lead to adjustments in the currency of an area. Such adjustments that took place during the third century were directly linked with the political and military crisis that took place at the time, and the crisis must have brought about certain administrative and financial decisions that affected also the coinage. The need for an increase in mint output, which would cover the increased needs of the State, resulted the devaluation of gold coinage, the debasement of silver coins, the overvaluation of bronzes and the subsequent establishment of new rates of exchange. Unfortunately the experiments of the central authority did not last and the final collapse of the monetary system in the mid-third century AD marked the end of one economic era and the beginning of another.

INTRODUCTION

The monetary policy of Roman emperors has always been considered a complex and confusing topic. However it is only a small part of economic history and should always be thought of as such in order to avoid misunderstandings. Still it was the difficulty of the topic that prompted me to explore the monetary economy of the eastern Roman empire.

The title of my thesis is 'Coinage, Money and the Economy during the Severan period'. The geographical and chronological extent of the topic had to be adjusted to the availability of the material and to the potential of the subject. My study begins with the reign of Septimius Severus, when the need for money prompted monetary reforms, and finishes with the reign of Gallienus, during which local civic coinages almost disappeared. These reforms make a striking contrast with the stability of the system during the Antonine era (Trajan to Commodus); this contrast prompted me to compare the two periods. On the other hand, the geographical area treated in my study had to be restricted to the eastern Mediterranean. The numerous mints that were situated there allow us to study the interaction between mainstream and civic coinages in the eastern provinces and the way the monetized section of the economy functioned. Furthermore, the lack of general economic studies concerning this area leaves room for innovative ideas, since new material is there to be examined and new results can be reached.

The study of the third century characterised by numerous monetary changes allows us to have an idea of the rationality of the Roman economic system and to understand the steps the emperors took in order to regulate the monetary economy. In fact, usually, periods of instability and change give the clearest indications of the functioning of any system and of its effectiveness. Political and military events are closely connected to the economy of the era and they should be considered as among the main reasons for the economic decisions of the emperor and the aristocracy.

The lack of literary and epigraphic evidence should not be a deterrent to our study, since there is a plethora of numismatic material at our disposal. The abundance of provincial and imperial coins revealed in the course of excavations in the provinces of the eastern Roman empire enables us to study their monetary function in detail. Coins were only one aspect of the economy, but no doubt an important one. Their

study help us understand better the economic function of both state and cities. In a few rare cases, we can even shed light on the financial situation of certain individuals.

The geographical area covered in this thesis extends from the Ionian Islands to the Roman frontier in the East. The area of Greece includes the Roman provinces of Achaëa, Macedonia, Epirus, southern Thrace and Cyprus, the area of Asia Minor consists of the Roman provinces that today are included in the Turkish state and the area of Syria that extends from the shores of the Mediterranean in the west to modern Iraq in the east and from the southern borders of modern Turkey in the north to Arabia in the south. The exclusion of Egypt, even though it also belongs to the eastern Mediterranean, is due to the fact that it had developed a closed currency system. The variety of cultural features of the regions that belong to this area helps us understand better the individual characteristics of the eastern provinces of the Roman empire. In particular, both the differences and the similarities in the production, supply and use of coinage between the regions mentioned above and other sub-regions becomes clear only when we make a comparative study. Although the evidence coming from excavations from these areas is not satisfactory and the number of publications is small, the advantages of dealing with a new territory are worth the effort.

The chapters in my thesis analyse the production and circulation of coinage in the eastern part of the Roman empire during the first half of the third century AD. The study of coinage in connection with the analysis of the political situation of the era, the military undertakings of the emperors and the economic problems of the empire can help us reconstruct part of the economic history of the third century AD. Even if I cannot hope to create a new economic model, my study will give us a glimpse of the significance of coins in the transformation and development of the monetary system and in daily transactions. The study of these changes will allow us to understand better both the structure of the Roman economy and the monetary policy of the emperors and the cities. The chapters in my thesis are organised as follows:

1. In the first chapter, I present the sources that I use in my research and the methodological problems related to their study. Since the subject of my thesis is Roman monetary economy, the most important type of evidence consists of coins found either in hoards or on excavation sites, or as stray finds now located in local museums. Roman coins circulated in sufficient quantities to be statistically analysed.

The problems related to this analysis can be solved in a way that can allow historians to extract historical, archaeological and numismatic information necessary for their studies.

The literary sources of the third century AD are silent after a certain point. Dio Cassius's 'Roman History' describes the political, administrative and sometimes economic conditions of the empire during the Severan era. On the other hand, Herodian is the only reliable historian who continues the narration of the history of the period down to Maximinus and the Gordians. Few secondary sources exist for the period down to the reign of Gallienus, apart from the *Historia Augusta*, which should be used with extreme caution. The study of inscriptions from the regions of Greece and Asia Minor is also important, since it can give us an insight into the legal and administrative system of the Roman empire. Although this material is vast and in some cases it has not been catalogued in a way convenient for the ancient economist, its study is worth it. The methods used for the study of literary sources and inscriptions are straightforward, therefore they did not need particular explanations in the course of this chapter.

2. In the following chapter, I try to define the role of the State in the supply and distribution of precious metal coins, silver and gold, throughout the empire. The central government was based in Rome and the legitimate ruler was naturally the emperor. The resources of the State originated from various activities such as booty during wars, confiscation of properties, or taxes during peaceful periods. Coins were mainly used as payment for the army, which was considered as the main State expense, and for the maintenance of the elaborate bureaucratic mechanism and rich lifestyle of the emperors. These factors allow us to describe an effective system for the distribution of precious metal coinage and the promotion of the monetization of the empire.

The individual characteristics of the provinces indicate differences in the supply and distribution policies. The differences raise questions relevant to the role of the central authority and its effect on the mechanisms for supply and distribution of coinage. Silver and gold coins were used, on the other hand, in substantial quantities mainly by the rich who wanted to support their elaborate households or to become involved in activities such as trade, banking, or agriculture. Patterns of circulation of coinage may indicate the significance of the upper classes in the distribution of money

in the Eastern Mediterranean and the importance of coinage in the integration of the empire.

3. The third chapter describes the production of gold and silver denominations in the provinces and in Rome during different periods. The statistical analysis of silver and gold coin hoards revealed through excavations or seen in auctions may show us patterns of change in the annual production of precious metal coinage. Fluctuations of mint output, which was regulated by the State, may indicate periods of political or military turmoil. Monetary changes, such as the debasement of the *denarius*, which were also triggered by the political instability of the third century, eventually affected the whole empire in terms of circulation of coinage and use of money. Furthermore, the structure of hoards suggests an increase in production of silver coinage in order to meet increasing state expenses. On the other hand, the restricted circulation of gold in the provinces, indicated by the lack of gold coin hoards, contrasts with the extensive circulation of silver. I will attempt to explain such an absence in the course of this chapter.

4. The study of the circulation of coinage must include the numerous bronze coins, which facilitated local trade. The cities in the eastern Roman empire, which produced the bulk of bronze coinage in the eastern provinces, did not have any political independence, but they were still allowed to administer their own mints. They had an economic life of their own within the economic lines defined by the emperor, they had their own resources and they took care of their own economic affairs. Their revenues could come from the rent of public land, from the imposition of indirect and hardly ever direct taxes, from the issue of bronze coins, from the imposition of fines etc. It seems, though, that the local authorities that were involved in the minting of coinage were not completely independent from the central authority. Therefore the study of their responsibilities as well as of local production and circulation of bronze coins would create a new perspective.

As a whole, the fourth chapter attempts an assessment of the factors that influenced the circulation of both mainstream and civic coinage in all the provinces of the eastern part of the empire. The data come primarily from excavations and only secondly from coin hoards, a fact that causes a slight differentiation in our methodology in comparison with the methods we used for the analysis of precious-metal coinage. The role of the administration, the movements of the army and the activities of individual traders are – I believe – the most important reasons for the

movement of coins and the establishment of patterns of circulation. The study of these factors could also help us not only to interpret the existence of bronze coins and explain the pattern of their circulation in the monetized parts of the empire, as well as determine the importance of bronze coinage in daily life.

5. In the fifth chapter, I analyse the total volume of production of bronze coinage issued from both mainstream and civic mints and its circulation in the eastern provinces. The political situation of the third century affected silver and gold coinages together with the bronze denominations and the number of bronze coins in circulation. The reforms undertaken by the emperor probably resulted in the collapse of the Roman monetary system after an existence of almost five centuries. The fifth chapter also deals with the change in the role of bronze, silver and gold coinage and the creation of a new system. The reasons for the end of the traditional system and the creation of a new one have a lot to do with the alteration of the political and administrative role of the cities and their financial difficulties.

In the appendix I include the numismatic material that I used throughout this thesis and the relevant bibliography. I provide information such as the location of coin hoards, the conditions under which they have been found, the number of coins included and the bibliography attached to them. I also include a bibliography of excavation finds and coins from local museums, as well as the exact number of identified coins that I have used in the thesis.

All in all, the purpose of this study is to examine numismatic and other evidence coming from the eastern provinces of the Roman empire, in order to achieve a better understanding of a small part of the vast subject of the Roman monetary economy and its interaction with social, political and economic aspects of the ancient world. In this respect, it is imperative to keep in mind that coinage did not exist in a vacuum, but rather it was the result of a specific historical context. The third century AD is one of the most interesting periods of Roman history and it should be seen as a period of ideological, economic and political transformation of the empire. The fact that this period was a turning point becomes clear in the provinces of the eastern Mediterranean, which were directly affected by the reforms undertaken by the emperors. The surviving evidence of the effects of these reforms give us ample opportunities to investigate the economic structure of the provinces and to better understand the structure of the Roman empire as a whole.

THE USE OF NUMISMATICS IN THE STUDY OF ANCIENT ECONOMIC HISTORY

INTRODUCTION

The economy of the ancient world is one of the most interesting aspects of the study of history. In fact, economic research is essential for the understanding of ancient cultures. Traces of economic thinking characterise not only the authorities that were responsible for the balance of revenues and expenditure in the Roman empire, but they are also predominant in the thoughts of the common people who fought for their everyday survival.

The remnants of ancient economies are scanty and can be revealed only with the intense examination of literary sources, epigraphic material, archaeological finds, as well as the ancient coins. The comparative analysis of all the available material is imperative if we want to reach trustworthy results. The most abundant evidence for the study of monetary history is, of course, the coins that were produced by both the Roman State and the cities of the eastern provinces. Their traces are still visible in most excavations while others followed another route over the centuries through numismatic trade.

In this chapter I will try to evaluate coin finds as evidence for the study of economic history, to stress the problems that their study entails and to underline their value for the researcher, so that the reader will be able to understand in the course of subsequent chapters the methodology I decided to follow. First of all, we should consider the conditions under which coins have been found, the circumstances of their loss in antiquity and the reasons for their loss. Numismatic finds are separated into three main categories: a) coin hoards, b) stray finds and c) site finds. The study of these categories entails various problems for the researcher mainly because of the poor condition of the material. It is imperative to note the problems in order to establish later a methodology for the statistical analysis of coin finds. This analysis, which is not approved by all numismatists, is possibly our only way to study an ancient monetary economy and describe patterns of coin movement within the Roman empire.

TYPES OF COIN FINDS

a) Coin Hoards

On the night of 12 June 1667, Samuel Pepys, deeply worried by the penetration of the Dutch fleet into the Thames estuary, decided to conceal his money. The next morning he sent his father and his wife off by coach with 1,300 pounds in gold, and instructions to hide this safely at his country estate in Huntingdonshire. Pepys later sent another 1,000 gold pieces through a special messenger. Only four months later was he able to recover his hoard. Meanwhile, he wrote in his diary that his wife gave him «so bad an account of her and my father's method in the burying of our gold, that made me mad; and she herself is not pleased with it, she believing that my sister knows of it. My father and she did it on Sunday, when they were gone to church, in open daylight, in the midst of the garden, where for aught they know, many eyes might see them; which put me into `trouble, and I presently cast about, how to have it back again to secure it here, the times being a little better now». And so he did. Digging at night, under exasperating conditions, he recovered two bags filled with gold. Unfortunately for him, the bags had rotted away, the coins were scattered through the soil that had to be dug and subsequently cleaned in a pail of water. Pepys in the end was lucky to emerge only some 20 pounds short of what he had sent¹.

People always talk about hoards with excitement, while they dream of hundreds, sometimes even thousands of pieces of gold and silver, jewellery and precious stones, or mythical treasures hidden in deserted islands. Numismatists, though, hold a different view regarding the issue and they tend to assess the value of hoards according to their historical importance. The first concern for researchers is to define a hoard. For practical purposes, the minimum size of a coin hoard consists of only two coins as long as they have been brought together deliberately, while if it is only one it is called stray find. The size of hoards varies widely and in some cases it could be estimated up to hundreds of thousands of pieces.

¹ The story can be found in Kent, J.P.C., 'Interpreting coin-finds', in J. Casey and R. Reece (eds.), *Coins and the Archaeologists*, 2nd ed., Oxford: British Archaeological Reports 1974, pp. 184-200, esp. p. 188; Grierson, P., *Numismatics*, London/ New York: Oxford University Press 1975, p. 124. The example of Pepys is used by most numismatists, who wish to show the circumstances of the burial of hoards.

It is essential, though, to distinguish between hoards that came together for economic purposes and 'ritual' deposits that were used for certain religious purposes. Often archaeologists reveal votive coins deposited as part of a process that took maybe hundreds of years to be completed. The place could be a spring, the statue of a god or a grave. Strictly speaking we could regard these deposits as hoards, with the exception that they have been immobilised with no intention of recovery. Therefore they should be handled differently and they should form an individual category since they did not function in any apparent economic way. Money offered to gods or to a dead person is almost inaccessible, except in the cases that the god's devotees, being human, bring these coins back into circulation if the circumstances demand it². Burial hoards can be used only if their structure is similar to the structure of other hoards from the same area and period.

The ancient literary sources sometimes describe the process of hiding money in antiquity by their owners. The usual places to keep money were an *arca*³, *armarium*⁴, *loculus*⁵ or *olla*⁶ somewhere in the house, so that the money would be available in case of need. Burial of coins in the ground took place only under special circumstances, *vel lucri causa vel metus vel custodiae*⁷, such as danger of war⁸. Excavations also revealed probable or even improbable hiding places. Hoards were found buried in very strange places, like the bottom of a river or the crater of an extinct volcano. Their owners placed them in hollow stones, leather bags, cloth purses or other containers or they took great care in arranging the coins in boxes. The sites where we locate ancient hoards indicate the residence of the owner or a place that the owner visited at some point.

Some of the characteristics of a hoard are the metal and the denominations of its coins. In general, they are likely to include pieces of higher value⁹, although poorer inhabitants probably acquired lower value denominations. Silver was commonly hoarded, and gold in lesser quantities, of course, provided that the owner

² Guest, P., A Comparative Study of Coin Hoards from the Western Roman Empire, Ph.D. thesis, London 1994, pp. 27-28.

³ Cicero, *ad Att.*, i, 9, 2.

⁴ Verr., iv, 27.

⁵ Martial, xiv, 12, 1.

⁶ Cicero, *ad Fam.*, ix, 18, 4.

⁷ *Digesta*, 41, 1, 31, 1.

⁸ Crawford, M., 'Coin hoards and the pattern of violence in the Late Republic', Papers of the British School at Rome 37 (1969), pp. 76-81, esp. p. 76.

⁹ Crawford, M., 'Numismatics', in M.H. Crawford and F. Millar (eds.), Sources for Ancient History, New York: Cambridge University Press 1983, pp. 187ff., esp. p. 202.

was rich enough to lay aside savings substantial enough to be translated into gold and silver. We should also remember that considerable numbers of copper hoards have been discovered. Since the value of a hoard corresponds to the social status of its owner, we should not underestimate the existence of bronze hoards. The loss of a fortune to a rich man may be nothing compared to the loss of a few pennies, which belonged to a beggar. Furthermore, in the same silver hoard we may encounter two denominations that belong to different weight systems, such as tetradrachms and *denarii*¹⁰. In a few cases we also find gold or copper in the same context with silver coins, although this does not occur very often. One of these cases is the coin hoards from the excavations of Pompei. The finds from Pompei reveal an exceptional pattern of small coin hoards consisting of different metals. In this instance the money carried by the inhabitants of the city on 24th August AD 79, when Vesuvius erupted, represented mostly the coins that a citizen would carry for his everyday transactions. Usually business affairs in a monetized society would demand coins in more than one denomination¹¹.

The size of the hoards also was determined by the economic status of the owner. Hoards of gold denominations were usually of small size in inverse proportion to their value, although there are exceptions of hoards that consisted of thousands of gold coins. Silver and copper hoards could either consist only of a couple of coins or they could reach the number of a few thousand or even tens of thousands of coins.

Another interesting aspect that characterises hoards is the life of the individual coins and denominations at various times. According to an inscription from Palmyra, beyond the eastern frontier, the old gold *denarius* was still in AD 193 a favourite coin¹². In one case, among many, legionary *denarii* of Marcus Antonius were still circulating in the early third century, almost two and a half centuries after they had entered circulation¹³. Similarly, copper coinage in some cases could circulate within hoards for as long as one century¹⁴. The life of a coin was not determined only by its material but also by its type. Some of these types became 'favourites' in certain

¹⁰ Burnett, A., *Coinage in the Roman World*, London: Seaby 1987, p.86.

¹¹ Duncan-Jones, R., *Money and Government in the Roman Empire*, Cambridge: Cambridge University Press 1994, pp. 69-70.

¹² IGR iii, 1050, "παλαιά χρυσά δηνάρια".

¹³ Duncan-Jones, *Money and Government*, p. 205

¹⁴ Foss, C., 'A hoard of the third century AD from Pamphylia', *Coin Hoards* 5 (1979), pp. 37-40. I have to admit, though, that cases like this are rare.

areas, and continued to circulate for centuries. When these popular coins were worn, copies were struck so that they would replace the originals. For example, coins with the portrait of Augustus were issued during the reign of Trajan. This situation causes problems to researchers when they try to date economic and political events relying on coins¹⁵. With the exception of coins that were popular, the rest of the coins were gradually withdrawn from the circulation pool, on one hand, because the emperors decided to re-mint the coinage (for political or financial reasons) or because individuals lost coins or exported them or hoarded them.

The lifetime of the coin within a hoard as well as its corrosion depends also on its denomination. R. Duncan-Jones estimated the differences of weight loss between the three metals –gold, silver, bronze. His analysis suggested that low-value coins lose weight faster than high-value coins, because the speed of circulation of small change is faster. The weight loss for the Roman period was probably for gold around 0.0226 %, for silver 0,0598 % and for bronze 0,1715 %¹⁶.

Normally, hoards are dated according to the point in which the hoard was closed, that is the date of the latest coin in it. In fact, this should be treated as a *terminus post quem*, since the last coin does not necessarily indicate the exact time of burial. One fairly useful indicator is the wear on the latest coins. If it is worn, then we can assume that the hoard was buried at a later date¹⁷, while if it is not worn we could guess that the coin was buried immediately after its minting. Another important characteristic is the general composition of the hoard. If the list of coins within it formed an uninterrupted chronological series ending abruptly with the latest coins, then the hoard was probably closed almost immediately after the date of its latest coins¹⁸.

The coins found in a hoard can be arranged in chronological order. The patterns that statistical analysis revealed, lead researchers to the conclusion that every

¹⁵ Jones, A.H.M., 'Numismatics and history', in A.H.M. Jones (ed.), The Roman Economy: Studies in Ancient Economic and Administrative History, Oxford: Blackwell 1974, pp. 61-81, esp. pp. 77-78.

¹⁶ Duncan-Jones, R.P., 'Weight-loss as an index of coin-wear in currency of the Roman Principate', in G. Depeyrot, T. Hackens, G. Moucharte (eds.), Rythmes de la production monétaire, de l'antiquité à nos jours, Actes du colloque international organisé à Paris du 10 au 12 Janvier 1986, Louvain-la-Neuve, 1987, pp. 237-256.

¹⁷ Laing, L.R., Coins and Archaeology, London: Weidenfeld & Nicolson 1969, pp. 61-62.

¹⁸ Robertson, A.S., 'Romano-British coin hoards; their numismatic, archaeological and historical significance', in J. Casey and R. Reece (eds.), Coins and the Archaeologist, 2nd ed., British Archaeological Reports, Oxford 1974, pp. 12-36, esp. pp. 15-16.

hoard has an internal structure. Generally this structure can be divided into three zones:

- The 'fall out' zone, which is represented by the oldest coins, which are considered to be relatively rare for the period to which the hoard belongs.
- The 'homogeneous' zone, which includes the coins that have been in circulation for some time until their distribution within the coinage pool became uniform.
- The 'erratic' zone, which is characterised by the most recent coins, issued just before the burial of the hoard. Since they have not been in circulation long enough their distribution cannot be even¹⁹.

The proportion of coins in each zone can classify hoards as follows: a) 'archaic' hoards, which include mostly older coins or b) 'modern' hoards, which include mostly modern issues²⁰. Somewhere in between lies the hoard that ideally combines archaic and modern characteristics and forms a peak right in the middle of the chart. Although this formation sounds ideal, in fact it does not reveal us the true composition of the circulation pool, since there is a possibility that political, military or financial events could favour either the 'archaic' or the 'modern' composition. In truth, 'ideal' hoards belong only to the sphere of theory, while in practice they usually do not exist.

At this point we should discuss the existence of the 'normal' hoard, a term, which has been successfully described by R. Reece²¹. It seems that the structure of the 'normal' hoard can be defined only in relation to other hoards from the same area that were buried roughly at the same time. If a substantial number of coin hoards reveals the same internal structure - the distribution of coins from each reign is the same - then we should expect all the hoards from the same region to demonstrate the same pattern of circulation. If a hoard is not compatible, it should be considered 'abnormal' and we should try to find the reasons for its abnormalities.

It is also interesting to explore the factors that affect the structure of hoards, of which the most important is considered to be the quantity of the annual mint output. Every year or more than once a year, the State decided to produce a number of coins in order to cover its financial needs or its desire for political prestige. The size of the

¹⁹ Guest, P., Comparative Analysis, p. 29; Lockyear, K., A Statistical Analysis of Roman Republican Coin Hoards with Special Reference to Material from Romania, Ph. D. thesis, London 1996, p. 268.

²⁰ Guest, Comparative Analysis, p. 29-30.

²¹ Reece, R., 'The «normal» hoard', in C. Carcassone and T. Hackens (eds.), PACT: Statistics and Numismatics 5, Strasbourg 1981, pp. 299-208.

issues usually corresponded to the amount of bullion the State acquired from mines, from taxes or from military expeditions. These issues are represented in the hoards and the coins form peaks during the reigns of the emperors who increased mint output. Another equally important factor is the preference of the owners of hoards for certain types or denominations as well as their social status that enabled them to possess a certain amount of money. The movement of populations (traders, army, tourists, officials) could also play a significant role, since they could carry coinage from one area to another, affecting in this way the circulation pool of the region. Finally, political barriers either permitted or prohibited circulation between certain areas. If the political *status quo* changed, then some of the coins, which belonged to the old government, may have found their way into hoards and may have been replaced by new coins that circulated in the market.

It is appropriate to explore also the reasons that prompted people to withdraw their money from the circulation pool and conceal it in the form of hoards. It seems that hoarding was a widespread practice during the Roman period and not only then, since it still takes place, where banking facilities are not satisfactory. A lot of people, at the beginning of the 20th century and even later used to keep money under their mattress or under the floor of their houses because it would be safe and readily accessible.

On the other hand, Plautus' in *Aulularia* gives us evidence of hoarding because of fear²². Plautus describes an old miser, who buries a pot filled with money under the hearthstone because he cannot live with the idea that someone might spend it. The same idea is apparent in another play of Plautus, the *Trinummus*, where an Athenian buries his treasure before setting out for a journey²³. Another kind of fear that affected probably the inhabitants of the Roman empire was one related to wars and brigandage. Appian²⁴ describes a mass concealment of treasures in Rhodes in 42 BC, before Cassius besieged the island. Another similar instance is reported by the Roman historian Dio Cassius²⁵, who says that during Trajan's reign, in AD 104, one of the barbarian kings seemed to be afraid of the fate of his treasure after the Romans won the war. So «with the help of some captives Decebalus had diverted the course of the river, made an excavation in its bed, and into the cavity had thrown a large

²² Plautus, *Aulularia*, 608-9.

²³ Plautus, *Trinummus*, 149-151.

²⁴ Appian, *RH*, iv, 73.

amount of silver and gold and other objects of great value that could stand a certain amount of moisture; then he had heaped stones over them and piled on earth, afterwards bringing the river back into its course».

Unstable economic systems are also thought to be reasons for extensive hoarding. According to some researchers, a stable monetary system encourages the normal circulation of money. On the contrary, an unsatisfactory reform of the currency prompts people to bury money that would ordinarily have been employed in business, particularly in cases when an old coinage has been devalued²⁶. Sir Thomas Gresham described this process with the following sentence 'In every country where two kinds of legal money are in circulation, the bad money always drives out the good'²⁷. In fact, the debasement of precious metal coinage was recognised as early as the 5th century BC when Aristophanes referred sarcastically to the period when gold was removed from the Acropolis and mixed with bronze in order to cover the needs of the Athenian state²⁸. Although most researchers accept the possibility of the occurrence of Gresham's Law and the phenomenon of extensive hoarding due to monetary changes, I would like to suggest that this law could be applied only in a few cases. We tend to find coins of different fineness circulating side by side during the Roman Principate, a fact that allows us to assume that coins had an acknowledged face value that was accepted by the inhabitants as well as the State, although it did not necessarily correspond to their real value.

Until a few years ago, scholars used another system of classification of hoards that was based on the reasons that has prompted their owners to put the coins together and later to hide them or lose them. The most widely accepted was the classification offered by P. Grierson in 1975²⁹. He divided finds into four classes: accidental losses,

²⁵ Dio Cassius lxviii, 14, 4.

²⁶ Casey, P.J., Roman Coinage in Britain, Aylesbury, Bucks: Shire Publications 1980, p. 53.

²⁷ Kanellopoulos, A., Σύγχρονες οικονομικές σκέψεις των αρχαίων Ελλήνων: Η οικονομική εργογραφία, I, Athens: Livani 1996, p. 177. Others attribute this law to the Bishop of Paris, Nicolaus Oresmius.

²⁸ Aristophanes, *Frogs*, vv, 718-726.

«Πολλάκις γ' ἡμῖν εδοξεν ἡ πόλις πεπονθέναι
τ' αὐτόν εἰς τε τῶν πολιτῶν τοὺς καλοὺς τε καὶ καλοὺς
εἰς τε τὸ ἀρχαῖον νόμισμα καὶ τὸ καινὸν χρυσίον.
Οὐτε γάρ τούτοισιν οὐσιν οὐ κεκιβδηλευμένοις
ἀλλὰ καλλίστοις ἁπάντων, ὥς δοκεῖ νομισμάτων
καὶ μόνοις ὀρθῶς κοπεῖσι καὶ κεκωδωνισμένοις
ἐν τε τοῖς Ἑλλήσι καὶ τοῖς βαρβάροισι πανταχοῦ
χρώμεθ' οὐδέν, ἀλλὰ τούτοις τοῖς πονηροῖς χαλκίοις
χθές τε καὶ πρόην κοπεῖσι τῷ κακίστῳ κόμματι»

²⁹ Grierson, Numismatics, 1975, pp. 131-136.

emergency hoards, savings hoards and abandoned hoards. The first category involves coins that were lost by accident and were found in purses or containers, consisting of uneven sums of money and therefore representing the currency used for everyday transactions. Emergency hoards represent the results of warfare or other dangerous situations, which impelled their future victims to hide their money for safety. Such hoards consist of coins of different denominations and are particularly valuable for dating because these coins were taken directly from the circulation pool during a specific event. The third category includes savings hoards, which differ from the emergency ones, because they tend to contain high-value coins, they cover a considerable span of years and they may lack the contrast between worn and unworn coins. Lastly, abandoned hoards were those, which were deposited with no intention of retrieving them e.g. funerary coins or coins buried in the foundations of buildings or coins offered to gods.

Problems, though, arise when we try to identify the exact nature of the function of coins found outside the archaeological context. The differences between these coins are not as distinguishable as researchers think. P.J. Casey in 1986 classified hoards almost in the same way as Grierson. He described three different categories of hoards - emergency, savings and 'purse' hoards - omitting only the 'abandoned'. He realised that although hoarders tended to collect heavier coins in order to save them, sometimes 'savings' hoards are used as 'emergency' ones. Probably the only visible difference is that emergency hoards included also other precious metals or pieces of valuable jewellery. 'Purses', on the other hand, are easier to identify, because they contain a small number of coins of different denominations, representing the currency used every day for minor purchases³⁰. R. Reece in 1987 questioned further the above division, because he could not detect any apparent distinctions between 'emergency' and 'purse' hoards. He accurately observed that people, who came from different social classes, possibly carried in their purses different amounts of money and different coin denominations. It is obvious that rich citizens could afford more than the poor; therefore the contents of some purses could be either extremely high-valued or worth only a few *asses*. The same characteristics should be applied to the structure of the emergency hoards, since they were also

³⁰ Casey, P.J., Understanding Ancient Coins: An Introduction for Archaeologists and Historians, London: Batsford 1986, pp. 56-57.

drawn from the same circulation pool³¹. At this juncture I would like to question the plausibility of the case of a rich citizen who would visit the market for his every day needs instead of sending his slaves or other employees.

In order to classify hoards, maybe, we should first locate their individual characteristics and try to trace differences as well as similarities between them. One of the most significant characteristics is the range of denominations that are included. When hoards consist of only one denomination it has been argued that the coins represent a 'savings' hoard, because in this type of hoard the owner is more likely to have been selective. Of course, in the case of a substantial amount of money, especially in the form of newly minted coins, we should not exclude the possibility that it could represent payments for the army or administrators that was lost before it reached its destination. On the other hand, the variety of the size of hoards hidden or lost should not trouble us, because of the different economic capacity of the individuals, as mentioned above. Finally, the coexistence of coins with other precious objects is not indicative only of 'emergency' hoards. People tend to save the latter since their value does not change every time a devaluation of coinage occurs.

According to the above, it seems quite hazardous to attempt the characterisation or classification of various hoards according to the individual reasons an owner had for their burial. On the other hand, it would also be erroneous to reject the whole idea before we consider another important factor: the archaeological context. The place in which the hoard has been found sometimes suggests the purpose of its burial and the intentions of its owner. The example of Pompeii, where archaeologists found 'purses' buried under the ash that came from the erupted volcano, gave the researchers the opportunity to identify the type of use of the hoards. These purses contained coins that probably circulated in the market during the eruption of Vesuvius and were intended for small transactions³². In other cities, coins have been found in markets, under the floors of houses, in towers and, all in all, in places that could explain the presence of coins and the identity of their owner. For example, if a hoard was found under a store, then its owner was likely to be the merchant who also owned the store. We could also categorise with relevant certainty coins that have been concealed in graves for ritual purposes and coins that come from

³¹ Reece, R., Coinage in Roman Britain, London: Seaby 1987, pp. 61-62.

religious sites. Sometimes even literary evidence and epigraphic material could give us information about the origin of the finds, especially in cases of violent events that led to the death of the owners of the hoards. Although the above indications could give us an accurate picture of the circumstances of the loss of the coins, in fact the cases that allow us to be certain about the category of the hoard are only a few and they do not help us reach any general conclusion.

Furthermore, the motives at the origins of the concealment of hoards cannot explain the reasons for the failure of their recovery. The most obvious reason is the death of their owner, especially in times of wars or uprisings, when the normal tendency to hoard money is intensified by fear, particularly in the most exposed regions³³. Provinces like Dacia and Pannonia present a comparatively high number of lost coin hoards. Such a concentration of lost hoards was explained with the existence of the army in the region and the high rate of human losses³⁴. During periods of insecurity the probabilities of not recovering the buried treasure increased suddenly, because of the plethora of deaths. It is extremely interesting to study the pattern that has been created by this kind of hoard³⁵, although we should not compare the variations in the use of money between peaceful and warlike periods, for the pattern becomes heavily biased in favour of the second³⁶.

Since hoards are still lost even when political and military security prevails, we should not generalise and try to connect their loss with patterns of violence for which wars are responsible. We should not forget that even in the most peaceful provinces banditry was still endemic in antiquity. Travellers constantly had to face the danger of being robbed before their journey was completed, in which case some of the money could have been hidden in a hurry at the edge of the road³⁷. Furthermore, plagues, intense famines, floods, hurricanes and catastrophic earthquakes were sometimes responsible for the death of thousands of people. Apart from the above, we can go on supposing dozens of potential situations and even more reasons for not

³² Breglia, L., 'Circolazione monetale ed aspetti di vita economica a Pompei', in Gaetano Macchiaroli (ed.), Pompeiana: Raccolta di studi per il secondo centenario degli scavi di Pompei, Naples 1950, pp. 41-59.

³³ Mattingly, H., 'Hoards of Roman coins found in Britain and a coin survey of the Roman province', Journal of Roman Studies 22 (1932), p. 88-95, p. 91.

³⁴ See chapter 2, on the role of the army in the Balkan provinces.

³⁵ Crawford, 'Coin hoards and the pattern of violence', pp. 76-81.

³⁶ Howgego, C., 'The supply and use of money in the Roman world: 200 BC to AD 300', Journal of Roman Studies 82 (1992), pp. 1-31, esp. p. 3.

³⁷ Patterson, C.C., 'Silver stocks and losses in Ancient and Medieval times', The Economic History Review, ser. 2, 25 (1972), pp. 205 ff., esp. p. 215.

recovering buried treasures. In every case, though, the loss of the hoard is directly connected with the death of its owner and his inability to recover his property.

However we should mention another reason for hoarding during peaceful times which is still accepted and which is not connected with the death of the proprietor of the hoard. It has been suggested that an unstable economic system or reform of currency drives individuals to put underground money that ordinarily would have been used for various transactions; particularly in cases when an old coinage was demonetised and the surrender value was too small to satisfy the owner. It has been suggested that such hoards were sometimes abandoned, because the older coinage sank to metal value and was not worth recovering³⁸. P.J. Casey used a different aspect of the same idea, in order to support his hypothesis about the pattern of hoarding in Britain during the raids from Gaul. In the course of his research he posed the question: 'How are we to explain the non-recovery in Britain which, even if threatened, still has the property of its undisturbed inhabitants in the soil after the crisis had passed?' and he continued: 'Successive debasement of precious metal coins are normally accompanied by hoards which discriminate in favour of premium coins, often those immediately antecedent to the debasement or coins from an earlier generation which have not yet been forced out of circulation by fiscal pressure'³⁹.

No one could deny the decline of the *denarius*' silver fineness throughout the Roman period, especially in AD 195, early in the reign of Septimius Severus, when the silver content of the *denarius* was substantially reduced to a little over 50%⁴⁰. Such cases of radical monetary reforms could explain the reasons for burying money, but they do not explain the reasons for not recovering them eventually. Although, according to one side of the debate, low value coins are not worth recovering, we should have in mind that the debased coins still contained a portion of silver or even base metal. Why should the owner ignore the fact that he could cover part of the lost value by selling – even half price - the debased or devalued coins to the government or to anyone who was interested in melting them and using the metal again, maybe for the production of jewellery? In some cases he could even exchange them for cheap goods, like bread or lentils or he could just give them to his children to play with or to friends as gifts. Even instances of excessive hoarding that took place in cities or

³⁸ Mattingly, 'Hoards of Roman coins', p. 91.

³⁹ Casey, *Roman Coinage*, p.66.

⁴⁰ See chapter 3, on monetary changes.

country areas, which were not directly involved in wars or plundering could be explained, if we assume that the citizens were indirectly involved, since there is a possibility that citizens of these areas were recruited to defend the rest of the empire and they probably lost their lives during battle. In any case, I would like to suggest that the owners would never abandon their money, even if it was of the lowest value, unless they faced death.

From the above we may come to the conclusion that the classification of hoards in a small number of categories should not be absolute, since hoards are different according to the owner, time, place and circumstances of their formation; therefore we should expect to find exceptional characteristics in them. The main individual features that we may encounter are a) coins of predominantly low denomination and poor condition, often including false pieces, b) selective exclusion of the lowest denominations, c) coins predominantly of a single issue, d) hoards ending exceptionally strongly (most of the coins belong to the period immediately before the burial), e) hoards ending exceptionally weakly (only a few coins come from the period immediately before the burial), f) hoards having a false end, g) hoards having politically motivated contents⁴¹. There is always a possibility that these kinds of hoards may not be representative of the coinage in the circulation pool, since they are the result of selection, so they can be defined as ‘untypical’.

Other ‘untypical’ hoards may be the result of differences in the geographical terrain, economic anomalies of certain areas or localised political events. There are cases when they represent different pools of circulation in different areas⁴². We acknowledge that borders between provinces did not inhibit economic activities and the subsequent circulation of coinage. On the other hand, certain hoards could come from one region, although they were found in another. We cannot exclude the possibility of someone travelling fast from one side of the empire to the other carrying money that were collected in the first region and buried in the second. Even the date of the latest coin is just a *terminus post quem* for the deposition of the hoard. It could have been deposited much later than the date we originally suppose. In some instances

⁴¹ Kent, ‘Interpreting coin finds’, p. 186.

⁴² Reece, ‘The ‘normal’ hoard’, p. 307.

it could even belong to a different chronological group with different characteristics than the one we initially assumed it belonged to⁴³.

b) Coins from local museums

The coins that can be found in a local museum are a mixture of hoards and coin finds from rescue excavations (or rarely systematic excavations); but the majority of them are stray finds.

The coins that turn up by chance and not as the result of excavations are characterised as stray finds. These coins were probably found in somebody's back garden, or traced with metal detectors by amateur archaeologists or were donated to local museums or they even constituted a part of a private collection. It was originally assumed that this category complements the category of hoards, which includes two coins or more, because supposedly the structure of both stray coins and hoards in some cases reveal similar patterns of circulation. I decided, though, to place them in a different category because the structure of coins from the local museums of Asia Minor and Greece that I listed tends to have strong similarities with the structure of coins from excavations.

The value of these coins was initially underestimated by numismatists mainly because they thought that such coins could give only typological information, they were worn and illegible and information about the circumstances of their discovery was limited. Even if a record of discovery existed, there was a possibility that it was inaccurate and unreliable. The people who found them usually did not want to reveal the exact place or the conditions under which they had discovered the coins, especially when their actions were illegal. Furthermore, the record favoured usually higher denominations such as silver and gold, while bronze coins were discarded as worthless. Another problem was imposed by the fact that they were also found out of any ancient context; therefore they give us little basis for any general conclusions that are relevant to one period or another⁴⁴.

⁴³ Howgego, C., 'The circulation of silver coins, models of the Roman economy and crisis in the third century AD: Some numismatic evidence', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World: The Thirteenth Oxford Symposium of Coinage and Monetary History, 25-27, 3, 1993, Berlin: Mann 1996, pp. 219-236, esp. p. 220.

⁴⁴ Grierson, P., 'The president's address: The interpretation of coin finds', Numismatic Chronicle 1965, pp. i-xiii, esp. pp. iii and xii.

All the stray coins that were listed in eight local museums in Greece (Yiannena, Thessalonica, Kavala, Komotini, Volos, Corfu, Rhodes, Delphi) and four museums in Turkey (Fethiye, Afyon, Yalvac, Sinop) are included in my thesis and are compared mainly to the coin finds that came from excavations.

c) Coins from excavations

Coins coming from excavated sites represent another numismatic group and should be studied in a different way. In contrast to the group of hoards, they represent what their possessors could best afford to lose, usually coins of smaller value. They have never been immobilised on purpose so that their owner could recover them later, as happened with the hoards. Instead they were accidentally lost and put out of circulation forever. The loss took place when the coin was not secured in its box or purse, from where it was taken mainly with the purpose of making a monetary transaction⁴⁵. They were usually lost in places, which by their nature made recovery difficult, such as muddy, unpaved areas, or floors with gaps between the boards. In neither case do such coins offer a good numismatic date for the construction phase of the building in question.

Lost bronze coins are recovered not only from towns where regular markets existed but also from rural sites. It has been observed that coins from the countryside have the tendency of spreading outwards instead of upwards on the same spot, or of moving from place to place within a given area when one building becomes run down and another one is needed⁴⁶. Therefore the concentration of lost coins ought to be low considering the limited time of habitation. Even within cities we can distinguish between zones of intense monetization and zones where only a few coins or no coins at all circulated. It is probable, for example, that we will recover more coins from the agora, from religious sites and from civilian settlements outside military installations.

The realisation that gold and silver coins are rare finds, while bronze coins represent the bulk of the finds, should not surprise us. Only 182 of the 16,557 coins that came from Agora excavations in Athens were of silver and 3 of gold, while the rest were bronzes⁴⁷. Although these coins were considered beautiful and valuable

⁴⁵ Anonymus, *De rebus bellicis* I, 6, «emendi et vendendi utilitas».

⁴⁶ Reece, *Coinage in Roman Britain*, p.18.

⁴⁷ Walker, 'Excavation coins: the use and misuse of numismatic evidence in archaeology', in K.A. Sheedy and Ch. Papageorgiadou-Banis (eds.), *Numismatic Archaeology, Archaeological Numismatics:*

objects, they were thought of being of minimal archaeological significance, for most of them were found in contexts hundreds of years later than their own dates⁴⁸. The archaeologists, in these cases, are reluctant to use these coins in order to date the artefacts that were found in the same context, since it is obvious that coinage could circulate for decades before it is irretrievably lost. The historians, on the other hand, should be able to treat them statistically and study the resulting numbers. Concerning the precious metal coins from Athens, even though their number seems to be limited, they still give us the opportunity to infer patterns of circulation, which in turn could be compared with the patterns that result from the statistical analysis of other coins coming from different excavations, e.g. Ephesus, Corinth, Rhodos etc.⁴⁹

Since certain factors seem to affect coin losses, it would be valuable to try to locate them. These are: a) The volume of coinage originally issued may have a significant effect, given that a period of high coin output will leave more traces. b) The intrinsic value of the coins. People can afford to lose those of lower value, but they will not rest if they lose a silver or gold coin until they recover it. c) The political situation. Recoinage has been a well-known procedure in cases of political instability. For example, when *damnatio memoriae* was imposed on Caligula after his death, only a few coins probably survived from this period and even fewer are found in excavations. d) Economic reforms such as inflation which could increase the number of coins in circulation; other monetary reforms (e.g. deflation) might decrease their number. e) The physical size of coins. The truth is that larger coins can be easily detected if lost. On the other hand, the value of these large coins might be low, so their recovery sometimes is not of any importance to the owner. f) A single coin is most likely to be lost, when it is actually in circulation moving from hand to hand⁵⁰.

Proceedings of an International Conference held to Honour Dr. Mando Oeconomides in Athens 1995, Oxford: Oxbow (for) the Australian Archaeological Institute at Athens 1996, pp. 17-26, esp. p. 21, n. 17.

⁴⁸ Rotroff, S.I., 'Coins and stratigraphy', in K.A. Sheedy and Ch. Papageorgiadou-Banis (eds.), Numismatic Archaeology, Archaeological Numismatics: Proceedings of an International Conference held to Honour Dr. Mando Oeconomides in Athens 1995, Oxford: Oxbow (for) the Australian Archaeological Institute at Athens 1996, pp. 8-16, esp. p. 9.

⁴⁹ See chapter 2, on trade patterns

⁵⁰ Casey, Understanding Ancient Coins, pp. 69-74; Ravetz, A., 'The fourth-century inflation and Romano-British coin finds', Numismatic Chronicle, ser. 7, (1964), pp. 201-231, esp. p. 213; Reece, R., 'The interpretation of site finds: A review', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World: The Thirteenth Oxford Symposium of Coinage and Monetary History, 25-27, 3, 1993, Berlin 1996, p. 341.

PROBLEMS

The study of the ancient material imposes numerous methodological problems on the researcher. The vast time that elapses between the issue of coins and their final recovery during the twentieth century is mainly responsible for the lack of adequate evidence and the poor preservation of the existing data. Even if we use comparative material such as inscriptions or literary sources there is no guarantee that we will ever be able to reconstruct the ancient world. In fact, the existing evidence can help us picture only some of its aspects. Even then, we will never have any positive proof, just indications of the structure of the society and the economy.

The methods followed by modern collectors or researchers for the collection of hoards sometimes cause significant problems to the study of monetary history. It is common knowledge that most of the coins were not excavated. Instead they were found accidentally and were subsequently sold to collectors through the antiquities market. The procedures followed by collectors as well as salesmen do not always inspire us with confidence and it is very difficult to trust the results coming from this kind of evidence. The legal system of individual countries could also have a negative effect on the credibility of hoards because sometimes dealers find it necessary to cover their tracks, so that illegally acquired hoards will not lead them to court. Some of the regular practices are the contamination of hoards with extraneous material, or their re-discovery in a different country under suitably arranged conditions. Especially those coins acquired out of context are open to suspicion because they could have been allegedly found in a place where prices are higher⁵¹. When I was not certain about the origin of the hoard I preferred not to include it in my thesis in order to avoid possible misinterpretations deriving from erroneous results of the statistical analysis.

A number of hoards are also suspected to include extraneous coins. These coins became associated with the hoard during the twentieth century, although initially they were not part of it. The main reasons for such a displacement could have been that a) the coins were lost in the vicinity of the hoard and were added to it upon recovery or b) they were muddled with the hoard in museums and private collections or c) in areas where finders are paid for hoards, they added extra coins to it to increase its value. One way to detect these coins is by finding differences in

patination, although in many cases they are dispersed and we can no longer examine them. Another way is to analyse the structure of the hoard itself and exclude any coins that do not fit the general pattern. For example, if the bulk of the coins belongs to the third century AD, with the exception of one or two that belong to the 6th century BC, we can assume that there is an intrusion. The researcher that is responsible for the publication of the hoard is usually able to distinguish extraneous coins and to extract them from the main body of the hoard.

Even when a hoard is found in the course of an excavation, this does not prove that our records or the following publications are complete. In the majority of the cases the numismatist deals with records of parts of hoards, which may be of two basic types: a) what is recorded might be a random selection of the whole, or b) the record may enumerate pieces selected for the fineness of their condition, or the pieces left after such a selection has been made. Occasionally, problems occur because the hoard may not be complete and only a small part of it may have reached us. Since we cannot be certain if these coins are representative of the total, we just assume that we have a random selection of the original composition of the hoard and we rely on this assumption when we conduct our statistical analysis.

Also hoard publications generally list the coins according to mints and rulers, without dating them specifically according to their year of issue. Since the coins, which belong to this era, are not dated to a year, they do not always help us analyse individual historical events in comparison with monetary changes that took place during a certain time. For example, numismatists usually identify coins that were issued during the Tetrarchic period and they do not mention the individual emperors who actually issued them, let alone the exact time of their issue⁵². The study of the circulation of coinage in a vast region or the comparative study of hoards of two different areas can prove equally problematic because for some areas we have a wide range of publications that allow us to draw certain conclusions, although for others the number of publications is relatively low and distorts our view of the economy of the province⁵³. Especially the publications concerning the eastern Roman provinces are not always satisfactory and they do not give us enough information in order to conduct detailed analysis of the existing material.

⁵¹ Grierson, P., 'The president's address', pp. vi-vii.

⁵² Bruun, P., 'Quantitative analysis of hoarding in periods of coin deterioration', in C. Carcassone and T. Hackens (eds.), *PACT: Statistics and Numismatics 5*, Strasbourg 1981, pp. 355-364, esp. p. 357.

Selectivity is another problem that we have to face. As I have already mentioned, Gresham's Law described the preference of people, in some cases, for the heavier and better quality pieces, the better preserved or the ones with metallic purity. Although the difference may not have been visible to the naked eye, there were experienced bankers, who could verify the fineness of the coins. The lack of sophisticated chemical analysis did not seem to prevent the precise evaluation of the fineness of the gold and silver coins. The process of selectivity could also be affected by other factors –rare ones- such as the types on the coins. Ancient collectors (as well as modern ones) would include in hoards only rare and unique coins with certain reverse types⁵⁴. In other cases Roman hoarders used to select them on the basis of political preference for one emperor or another⁵⁵. Furthermore, a single denomination coin hoard would have been preferable if it was destined for payments of the army or civil servants, as I already mentioned.

In order to understand specifically how hoards can facilitate our work we should always have in mind, that they were buried with the intent to be recovered later (apart from votive offerings); therefore we are dealing with temporary immobilisation of coins put together with the intention of returning them to the currency pool sooner or later. Although it may sound odd, it is certain that we should use coins that went out of circulation until the present day, if we need to study the circulation of money in the Roman Empire. According to the law of probability, the number of hoards lost in time, represents *pro rata* the number of hoards originally buried and subsequently recovered by their owners. Such a representative sample of coinage could correspond to the original pool of circulation, if it has been selected with caution⁵⁶.

We also have to face problems when we study coins that were found in an excavation site. The methodological problems start with the inadequate publication of sites that were mainly excavated during the first half of the twentieth century or even before. Archaeologists of earlier generations were especially interested in buildings, inscriptions and sculpture; therefore often they did not notice coins and they left their records incomplete. Numismatists sometimes behaved in the same way when they

⁵³ Guest, *Comparative Analysis*, pp. 44-45.

⁵⁴ Robertson, 'Romano-British Coin Hoards', p.21.

⁵⁵ Crawford, *Numismatics*, p. 198; Howgego, C., 'Coin circulation and the integration of the Roman economy', *Journal of Roman Archaeology* 7 (1994), pp. 5-21, esp. p. 12.

⁵⁶ Crawford, 'Numismatics', p. 201.

repeatedly failed to keep a record of the coins' identification, depriving subsequent scholars of the possibility to subject them to statistical analysis.

Another problem is that a single coin can be found almost anywhere; therefore we cannot possibly be certain about the exact time until which the coin circulated in the site. Coins which are found at the top of a stratigraphic layer, are particularly suspect, as they could belong to the layer above⁵⁷. For example, Roman coins that have turned up beneath archaic buildings can easily be dismissed as intrusions. Only if more than one coin is found, we should speculate how and why they are there, since they may represent part of a hoard that was buried so deep that it reached the layer of another period, such as the Archaic.

Despite proper excavating procedures a large number of coin-finds are still illegible, because of corrosion. In the excavations of the Agora in Athens 2/3 of the coins have not been identified, half of those being completely illegible and the other half dated to the time span of one century⁵⁸. Their wear happened because of two different reasons. On one hand, a coin that used to be in perfect condition prior to being dropped could be naturally corroded after a few centuries, if it was buried in soil that was wet, humid or acid or with high salinity⁵⁹. On the other hand, coins can be illegible because they circulated for several decades or even hundreds of years after their issue, so their relief has disappeared through continuous usage.

Working on numismatic collections in a local museum is also a difficult task with many hazards. The main problems that a researcher is compelled to face when he/she visits a local 'ephoria'⁶⁰ are the following: a) The curators as well as the archaeologists are unwilling to share 'their' numismatic material with other researchers. b) Local museums lack even the basic facilities for the study of coinage, including adequate light. c) The catalogues are not complete, since a large number of the coins remain listed in the diaries of the archaeologists who excavated the sites. Besides, these catalogues include also hoards that sometimes are not distinguished from stray finds. d) Local coins are not identified by the archaeologists, not necessarily because they are not qualified to identify Roman Provincial coins but also

⁵⁷ Laing, *Coins and the Archaeologist*, p.71.

⁵⁸ Rotroff, 'Coins and stratigraphy', p. 10.

⁵⁹ Casey, *Understanding Ancient Coins*, p. 88.

⁶⁰ 'Ephoria' is called an archaeological division in Greece. The person responsible for its organisation is called 'ephoros'.

because the coins are highly corroded. e) The catalogues include also coins that come from private, not localised collections. f) Most of the excavation coins or stray finds are bronzes.

Although the conditions are pitiful, in more than one case I was able to detect common patterns between the structure of coin finds that come from museums and the structure of coins coming from excavations. The similarities cannot have been created by chance; therefore we should be fairly certain that our results are more or less trustworthy. If there were a certain degree of resemblance of the pattern of stray coins with the pattern of other types of coins (from excavations and from hoards), then the results from all finds could be compared and eventually they would allow me to suggest that stray finds are invaluable for the conduct of historical research. Although everyone agrees that methodological problems still exist, also other numismatists accept the results from the statistical analysis of stray coin finds housed in local museums⁶¹ or private collections. In fact, it would be worth adding coins from local collections in our study, because collectors with an interest in local material are willing to help numismatists and usually they can give valuable information about the place of the discovery of the coins. It is reasonable to bear in mind, though, that all these stray coins should not be used without taking into consideration the evidence from excavations and coin hoards but they can be used as valuable sources for comparisons.

Apart from the individual problems that we have to face when we examine the different categories of coin finds, there are also problems that could characterise all three types. For example, a lot of bronze coins from hoards, excavations and museums could be worn and impossible to be identified. Other coins are attributed to an emperor, while their exact issue date is not attested. For example, the coins that are attributed to the reign of Gallienus may not be identified specifically to either his joint reign with Valerian or his sole reign. The same happens with the coins that present the bust of the two Faustinas and can be dated to the reign of either Antoninus Pius or Marcus Aurelius⁶². The reigns of Septimius Severus and Caracalla are also problematic since Caracalla, his brother Geta and their mother, Julia Domna appear

⁶¹ Walker, 'Excavation coins', p. 23; Reece, R., 'Site finds in Roman Britain', *Britannia*, 26 (1995), pp. 178-191, esp. p. 180.

⁶² Guest, *Comparative Analysis*, pp. 48-9.

on coins both from the reign of Septimius Severus as well as the subsequent reign of Caracalla. In these cases I have chosen to study the reigns of Septimius Severus/Caracalla as one to avoid confusion, apart from the cases that involve hoards, which were published in detail. I followed the same method for the reigns of Valerian and Gallienus. Furthermore, I attributed the few coins of Faustina I to the reign of Antoninus Pius and the coins of Faustina II to the reign of Marcus Aurelius. At least the above disturbances usually do not affect the closing of the hoards⁶³, since researchers are extremely careful in giving an accurate date for the last coin.

We also have to face the fact that a coin could have been lost a long time after its date of issue. Since in some cases the life of a coin stretches into several decades, displaying their distribution in the format of a histogram can be misleading, because it fails to show that the coins of each defined period could be present in the currency pool of any later period⁶⁴. Furthermore, different denominations may have longer circulatory lives than others. Also we cannot rely on how worn they are because there are a few instances of coins immobilised in hoards for long periods that resumed a circulatory life a lot later in unworn condition⁶⁵. One example may give us an idea of the lifetime of coins. According to modern estimations for the period 1902 to 1966 the mean lifetime of the penny was 51 years, while for the period 1911 to 1953 it was 109 years⁶⁶. We can obtain information about the longevity of coins if we study the coins that we found in the context of hoards that have already been dated or if we rely on the written sources.

The quantitative aspect of coin finds (e.g. how many coins of emperor X have been found on a site) forces us to deal with numbers and statistics⁶⁷. The use of statistical methods such as tests of similarity, tests of significance, and measures of variation and deviation from a mean has been tried repeatedly and eventually rejected by a significant number of numismatists.

Apart from the lack of adequate numbers of finds in some cases, as it has been described above, the most serious problem is the limited number of coins recovered from the archaeologists in comparison with the coins initially issued by any state.

⁶³ Crawford, 'Coin hoards and the pattern of violence', p. 78.

⁶⁴ We have to face this problem when we study mainly excavation or stray finds.

⁶⁵ Casey, *Understanding Ancient Coins*, pp. 105-107.

⁶⁶ Cole, T.J., 'The lifetime of coins in circulation', *Numismatic Chronicle* (1976), pp. 201-218, esp. pp. 207-208.

According to Casey⁶⁸ we are able to recover only 0.003 % of Roman coinage. Even if we suppose that our sample has been randomly lost, there will always be a strong possibility that our results will change if new material is revealed. The application of statistical analysis to our material should remind us, first of all, of the fact that the coins at a numismatist's disposal are no more than a small proportion of those that once existed and that the validity of any interpretation must depend upon how they represent what a statistician would call random sample.

Some of the factors affecting the diversity of the evidence will be mentioned later: the variety of coin production each year, the imperial policy, political preferences and individual inclinations, factors of discovery etc. What we should note now are the problems arising from the comparison of more than one different coin. First of all, we recover coins buried or lost in different places, by different people, in different times and under different circumstances. Another problem is the variability of different groups of archaeological material, mainly because archaeologists in different excavations use different methods of digging, which could cause chaos to any numerical study⁶⁹. As for the archaeological finds, we have to note that they are usually not of orderly distribution. Furthermore, we face difficulties in the comparison of coins found in sites that had dissimilar functions. It is imperative that we distinguish between military forts and rural sites, because otherwise they will distort our view of the circulation of coinage at any given time. Moreover, if we compare the mint output of one reign with the mint output of another we will realise that this output is analogous to the length of the reigns. It is obvious that long reigns logically produce more coins⁷⁰.

It is obvious that the problems arising from the study of economic history are quite complex. The main difficulty is that the material coming from reliable sources is scanty and does not always permit its statistical treatment. The whole situation may sound disappointing and could lead the researcher to abandon his/her project before he/she even starts. There do, though, exist methods that help us to achieve partly our purpose. Since it is a known fact that if we treated our material the way a modern statistician would, then we would end up with no material at all, we usually follow a

⁶⁷ Reece, R., 'Economic history from Roman site-finds', in T. Hackens and R. Weiller (eds.), Proceedings of the 9th International Congress of Numismatics, Berne 1979, Louvain-la-Neuve 1982, pp. 495-502, esp. p. 497.

⁶⁸ Casey, Understanding Ancient Coins, p. 84; Crawford, 'Numismatics', p. 206.

⁶⁹ Reece, R., 'Site-finds in Roman Britain', p. 180.

more flexible approach. In the next section I intend to unfold the methodological process that has been followed in this thesis.

METHODOLOGY

Methodological procedures should be specified if we want to approach effectively our otherwise problematic material. The proper methodology will allow us to treat numismatic evidence in a consistent and efficient way that will save us from unnecessary mistakes and needless delays. A cautious procedure is indispensable from the time we discover the hoard within a certain archaeological context until the time we will include the results in the economic analysis of a region.

In the first instance, the study of every single hoard or coins from excavations and museums is inevitable. The place where coins have been found, their date, the types, the variety of denominations and the weight standards can give us a range of interesting information about the economy and the history of the area. If thousands of coins were found in a site instead of only a few pieces they could give us more accurate information on the circulation of coinage in the area as well as on the mint output during every reign or per annum. Such information could be derived also from the examination of sizeable hoards such as the Reka Devnia Hoard, found in the ancient Marcianopolis of modern Bulgaria. The hoard contained more than 100,000 silver coins, a number that represents either a large fortune or a large state payment. Although it was buried in the middle of the third century, the coinage is dated from Nero onwards with a few specimens from Marcus Antonius' issues⁷⁰. The way to study it has been demonstrated by Duncan-Jones⁷², who took a sample of 15,000 coins from the reign of Septimius Severus and subdivided it into 5 main periods. The analysis of coins by period helped him detect outbursts of mint activity. Afterwards he tried to get as much information as he could from the coin types by estimating the number of types for each period, the number of coins per type and the percentage of male and female representations on them. Finally, he estimated the number of coins that came from eastern mints in comparison to those that came from western mints, in order to detect possible differences.

⁷⁰ Casey, *Understanding Ancient Coins*, p. 89.

⁷¹ Mouchmov, N.A., *Le grant trésor numismatique de Reka Devnia (Marcianopolis)*, Sofia, 1939.

Although this kind of analysis can be very constructive, I have chosen not to follow it for various reasons. First of all, no hoards of this size were found in Greece, Asia Minor and Syria. Secondly, some of the publications of hoards, or even excavation finds do not always include even basic information, such as coin types. Most importantly, in this thesis I am chiefly interested in the comparison between areas and not in the study of individual coin finds in only one region. The comparative analysis of different types of finds from more than one area can help me reach general conclusions concerning the monetary policy of the emperors in the eastern provinces and the circulation of coinage from one region to the other. The coins from hoards or excavations or museums can be used, if analysed statistically, to construct chronological and regional patterns of circulation and give us an idea of the mint output and circulation of coinage. Even if we decide to examine just one area, the pattern of a substantial number of coins that belong to different categories (hoards, excavations, museums) would obviously be trustworthier, since only one hoard may not be 'normal'⁷³. All in all, the conclusions resulting from a single group of coins coming from either excavations or hoards or museums must be evaluated with care and in association with the evidence that comes from others.

Different procedures should be followed in respect to the chronological and regional analysis of our data in order to detect patterns of production supply and distribution. There are, though, certain similarities in these procedures. First of all, it is important to evaluate the quality and homogeneity of our data and accordingly assess their significance. We should start from the cautious exclusion of uncertain or poorly recorded material, having in mind that this process may leave us without ancient material at all because of the problems that I described above. Our second step is to consider the variations of hoards, coins from excavations and museums in size, denominations and value. The proper classification of coins compels us also to divide treasures according to the metals that they include - gold, silver and bronze coins -, because they demonstrate different structures and eventually different patterns of circulation. For example, hoards including silver coins should not be compared with hoards including gold coins. The coins should be turned into percentages and subsequently they should be estimated according to their dominant denomination.

⁷² Duncan-Jones, R., Money and Government, pp. 133-138; Duncan-Jones, R., Structure and Scale in the Roman Empire, Cambridge: Cambridge University Press, 1990, p. 73.

⁷³ See above notes on 'normal' hoards.

Different regions should also be treated separately since their comparative analysis usually demonstrates different circulation patterns. The statistical analysis and the comparison between hoards, excavation finds and coins from local museums can help us distinguish between different circulation pools even within the same province. We need to compare evidence from more than one excavation, in view of the fact that individual sites may have issued coinage of different weight standards or the people living there were involved in different economic activities, consequently changing the character of the site.

Previous researchers supposed that different types of sites would produce different results and different circulation pools, so they tried to cluster these sites according to their function. An initial effort to divide British sites according to their use has been attempted by Casey⁷⁴, who clustered civil and military sites in two different groups (in the latter he included the scanty rural evidence). Even though in both cases the composition of the currency was similar, only a few military sites were as deeply stratified as the civil ones. Camps also were kept clean, a factor that could probably cause the desperation of any optimistic archaeologist. The fact that the same military unit did not always occupy forts for very long periods and that we can also trace variations in the military pay of the soldiers and officers as well as the size of units is very important for the study of such sites. Later⁷⁵, Casey noticed differentiations also between forts and temples because the coins found in the latter could have been deposited there as votive offerings and they were not expected to be recovered; therefore a different treatment of the numismatic data from the two sites became imperative.

R.Reece has performed another sophisticated clustering of British sites⁷⁶. On one hand, country sites were divided in forts, temples and villas and, on the other hand, towns and settlements (that included all the sites below the rank of *civitas*) were separated into small and large, and those on the East and West of England. Towns

⁷⁴ Casey, *Roman Coinage*, pp. 26-51.

⁷⁵ Casey, *Understanding Ancient Coins*, p. 82.

⁷⁶ Reece, *Coinage in Roman Britain*, pp. 72 and 91-94; Reece, R., *Roman Coins from 140 Sites in Britain*, Cirencester: Cotswold Studies 1991, pp. 1-2; Reece, R., 'British sites and their Roman coins', *Antiquity*, 67 (1993), pp. 863-869, esp. pp. 863ff.; Reece, 'Site finds in Roman Britain', pp. 181 and 183.

were divided between those, which followed a general pattern of coin loss - 'good' towns - and those, which followed an individual pattern - 'bad' towns. We can distinguish 'bad' towns when we compare them with the mean figure from the 'good' (or normal) sites. Furthermore they were divided between the East of Britain and the West. The different groups showed different patterns of coin loss and changes that were caused both by category (such as town or settlement) and/or geography (East or West).

The same process could be followed in the geographical examination of coin hoards. Differences in the number of hoards buried in various sites forces us to distinguish between burial places - rural, civil, military areas. The historical patterns that will emerge may correspond to the character of the site and possibly the occupation of the owner⁷⁷. A substantial number of hoards in Britain have been found in rural sites and less in military and civil sites. This does not mean that there was originally more hoarding in the countryside than in towns, although there is a possibility that hoards concealed in towns were more likely to have been recovered in antiquity⁷⁸.

Differences between sites could suggest that also different circumstances of supply, use and loss of coins took place there. Such 'anomalies' exist between sites probably because: a) different activities went on (e.g. at forts and temples) or people of different economic status lived in different areas, therefore they used coinage in a different way, b) the level of monetization differed from place to place (for example, in a villa only two or three persons may have used coins, while in the cities more people would find them useful), c) army movements from one fort to another occurred frequently or d) major historical events affected only certain kinds of sites (e.g. forts)⁷⁹.

The archaeological material from Greece, Asia Minor and Syria is not as abundant as in the western provinces. The low number of systematic excavations in the East is responsible for the few numismatic catalogues of coin finds from the area and does not allow us to conduct comparative studies between different types of sites. Only in a few cases can we study the number of coin finds from military sites in comparison with the number of coin finds from other cities. This way I will be able to

⁷⁷ Robertson, 'Romano-British coin hoards', p. 26.

⁷⁸ Howgego, 'The supply and use of money', p. 20.

assess the degree of monetization between the eastern frontier and western Asia Minor. For the rest of the cases it is more effective to examine evidence by region, as other researchers have demonstrated.

The study of coins that come from neighbouring areas could be especially constructive. In the case of Britain such areas would be N. France, S. France and N. Italy. Although these regions probably carry within them particular clusters of coin groups they can still give us an idea of the patterns of circulation in the entire area and they could help us compare them with the patterns of circulation pools from Britain⁸⁰. I also used this method for the study of circulation pools that exist in the different provinces of the eastern Mediterranean. Another way of studying the circulation in the empire is by dividing it in two parts North/South or East/West⁸¹. The main problem is that in this last case we cannot detect provincial or other regional differences caused by individual geographical characteristics (mountains, rivers etc) or political situations. Therefore our results will be too vague and even probably misleading.

At this point I should explain how we become able to detect patterns of circulation between different regions. It has been attested that the denominations and the value of the hoards vary between regions⁸². Patterns of geographical distribution are very important and a first approach would involve a detailed catalogue of the hoards, excavation finds and stray finds from museums reported in each country, or province. Unfortunately older publications of hoards do not always include this type of information, a fact that forced me not to use data such as types and denominations in my thesis. Therefore I restricted my study to the numerical analysis (with the help of histograms) of groups of coins from various areas during the Antonine, Severan and Military Anarchy periods.

So far the approved procedure for coin finds that come specifically from excavation sites has been the use of cumulative charts. This procedure seemed essential because we do not actually know for how long coins circulated. In order to create cumulative charts we should add up the coins belonging to each reign so that

⁷⁹ Reece, 'British sites and their Roman coins', pp. 864-867; Reece, 'The interpretation of site finds', p. 344.

⁸⁰ Reece, R., 'Clustering of coin finds in Britain, France and Italy', in P.J. Casey and R. Reece (eds.), *Coins and the Archaeologist*, British Archaeological Reports, Oxford 1974, pp. 64 and 70.

⁸¹ Duncan-Jones, *Money and Government*, pp. 72-73.

⁸² Duncan-Jones, *Money and Government*, pp. 72-73.

they illustrate, period by period, the total of coins circulating every year⁸³. Let us assume that we excavate a site dating from the age of Septimius Severus to the age of Maximinus. Possibly 20% of the coins could have been lost by the reign of Caracalla, another 35 % by the reign of Elagabalus, another 40 % by the end of the reign of Severus Alexander, and the last 5 % during the reign of Maximinus. In these cases we cannot reject the possibility that the coins issued by Septimius Severus could have been lost as late as Maximinus' reign; therefore at this point we reach 100 % of the coins lost on site.

In this thesis I decided not to use cumulative charts for two basic reasons. First of all, these kind of diagrams would not allow any comparisons of coins from excavations with the evidence coming from local museums or hoards. The use of histograms, in fact, demonstrated in certain cases the similar structure of coins from excavations with coins kept in the museums of the same area. Secondly, the number of coins that we add in cumulative charts reaches its highest peak at the time of Gallienus, when my study finishes. This artificial ending does not mean, though, that after this date no more coins from earlier periods circulated in the area. Furthermore, we have to take into consideration that we cannot expect the coins from the reign of Trajan to circulate until the reign of Gallienus, as the cumulative charts would indicate.

Our next step is to locate 'peaks' in the histograms that are created from the comparative analysis of the existing material, so that these periods can be examined, taking into consideration the historical background of the region. Anomalies in the structure of the hoards are defined in contrast with the 'normal' hoards that have already been recognized for other periods or areas⁸⁴. Hoards with less than 20 coins, though, should not be included because they can lead to statistical distortion⁸⁵.

It is also possible to study the distribution of hoards by noting their exact location on maps of the provinces. These maps could describe the presence of hoards according to different periods or even reigns. The hoards could be presented as dots on the map but with different shapes or colours according to their size or the regions could be shaded according to the density of hoards in each one of them⁸⁶. Although this practice has been proved to be effective for the study of other regions, I am not

⁸³ Reece, 'Site finds in Roman Britain', p. 183; Collis, 'Data for dating', p. 181.

⁸⁴ See above, R. Reece on 'normal' hoard.

⁸⁵ Guest, Comparative Analysis, p.50.

going to follow this procedure in my thesis not only because the hoards in the East are not numerous but also because we do not know their exact location.

If we want to detect the movements of people within the empire we need another kind of study. A type of demonstration could present the distribution of individual mints, whose coins circulated in a region over a certain period. If we reached the conclusion that the majority of the coins came from different provinces or that the inhabitants preferred the output of one civic mint to another, then we would be able to trace patterns of trade or movements of certain types of populations. We should be careful, though, not to present every coin from every mint in histograms because this approach would be extremely confusing. Instead, it would be preferable to display a simple list of coins, found in a specific region, and their origin⁸⁷.

All in all, the analysis of the geographical distribution of coins could enable us to study the supply and distribution of coinage in the provinces. The state seems to be the main factor for the initial distribution of precious metal coinage in the eastern Roman empire. The emperor needs money –especially silver and gold coins- to pay his soldiers, to sustain an administrative mechanism and, in general, to benefit his subjects; therefore he had to start issuing his own coinage. Once the money reached the market in the private sector, it was distributed, though not evenly, to the entire population. This money was important for the promotion of trade and the payments of loans, rents or taxes⁸⁸. Coins are repeatedly used to identify these transactions⁸⁹, although this is not always possible, since it is extremely difficult to find the exact reason for the usage of every single coin in antiquity. Coins do not necessarily explain the reason for their existence in one or another region, unless the information that they give is crosschecked with literary or epigraphic sources. We can only guess the factors that promote the distribution of coinage and try to see the extent of their influence.

On the other hand, civic bronze coinage informs us about the movements of people within certain areas and their everyday transactions. Individuals, such as small traders or workers who would attend markets and festivals could have carried also bronze coins with them. In other cases, the soldiers, as a large and mobile body of people, could affect the circulation of bronzes, mostly near the frontiers.

⁸⁶ Guest, *Comparative Analysis*, pp. 51-52.

⁸⁷ This approach has been attempted in chapter four.

⁸⁸ Lockyear, *Multivariate Money*, pp. 132-133.

Unfortunately the circulation patterns of civic and regional coinages do not reveal the entire length of long distance movements, because their distinctive patterns of denomination and fineness in most cases confined them to the regions in which their use was traditional⁹⁰. Regarding the Roman Empire, bronze coinage only in few instances was taken far from the mint to the place where it has been found by some manner of means either direct or indirect. Although we will never know the route that it followed, at least we can determine the relationships between the regions that issued the money and the regions where currency was used. Since bronze coinage tends to circulate within a radius of no more than 100 kilometres⁹¹, any exception from the rule should be studied and analysed separately. It would be useful if someone compared the results of coin distribution with the trade of certain artefacts so that we might become able to trace connections⁹². For the time being I am going to restrict my thesis to the study of the interregional analysis of patterns of coins in order to detect the factors that facilitated the movement of coinage. I will leave the study of the local circulation of bronze coins and the reasons for their movement for a future study.

Patterns of circulation of coinage could also help us to prove or disprove the integration of the Roman monetary economy based on individual coin types found in them⁹³. Some researchers using this method, such as Duncan-Jones, have come to the conclusion that the monetary economy was not integrated. According to their view the power of the army as well as inter-regional trade have been considered to be inadequate to affect extensively the circulation of coinage⁹⁴. Other researchers have reached the opposite results, claiming that taxes as well as trade activities allowed the circulation of coins in distant provinces and integrated the economy⁹⁵. Lately the view that has prevailed is that some types of imperial base metal coinage from the mint of Rome are largely confined to one province, while it is not the case with individual types of imperial gold or silver coins from Rome. Precious metal coinage

⁸⁹ MacDonald, D., *The Coinage of Aphrodisias*, London: Royal Numismatic Society 1992, pp. 15-16.

⁹⁰ Howgego, C., *Ancient History from Coins*, London/ New York: Routledge 1995, p. 102.

⁹¹ Jones, T.B., 'A numismatic riddle: The so-called Greek Imperials', *Proceedings of the American Philosophical Society*, New York, vol. 107, no. 4, August 1963, pp. 308-347, esp. p.318.

⁹² Howgego, C.J., *Greek Imperial Countermarks*, London: Royal Numismatic Society, 1985, pp. 32-34.

⁹³ Duncan-Jones, R.P., 'Mobility and immobility of coin in the Roman empire', *Annali: Istituto Italiano di Numismatica*, 36 (1989), pp. 121-137.

⁹⁴ Duncan-Jones, *Structure and Scale*, pp. 172-178.

⁹⁵ Hopkins, K., 'Taxes and trade in the Roman empire (200 BC - AD 400)', *Journal of Roman Studies*, 70 (1980), pp. 101-125, esp. pp. 101ff.

was distributed evenly and circulated widely⁹⁶. It seems that a different approach to this evidence could lead to a different interpretation of the Roman monetary economy. First of all we should ask whether we want to prove the integration of the economy as a whole or just the integration of the monetary economy. If the answer is that we are interested only in the function of the monetary economy, then the study of the structure of coin hoards, excavation finds or other coins from local museums could help us demonstrate either the integration or non-integration of coinage. Specifically, the patterns of silver coinage could show a variety of circulation pools within the eastern provinces of the Roman empire, while the circulation pools of bronze coinages are even more diverse because of their restricted capability of movement.

In the same way the distribution of coin finds could help us estimate the degree of monetization in the Roman empire. According to Duncan-Jones⁹⁷, if we estimate the number of coin types in sizeable coin hoards and then we compare them with the number of types in other hoards coming from different areas or different periods, we may be able to acknowledge differences in the degree of monetization. There is a problem, though, concerning the eastern provinces, that prohibits this method. It seems that the number of coin hoards as well as the number of coins in them is quite low and cannot be treated in the way that Duncan-Jones describes. In our case it is more useful to locate the place where hoards were found or estimate the number of coins found in different sites in order to detect differences in the monetization of these areas⁹⁸. Abundant coin losses could represent the extensive degree of monetization in the Roman Empire. Site finds are especially valuable because they show us the role of coinage in every day life and in small transactions. The development of a market economy in opposition to the primitive system of exchange of goods can be attested by the existence of lost bronze coins in cities, fortresses, villas and other similar places, where coinage was necessary. Even within a city we can trace zones of extensive monetization (e.g. markets). We should always have in mind, though, that this procedure is not a panacea and that we have to take into consideration the epigraphic and literary evidence that demonstrates the

⁹⁶ Howgego, *Ancient History from Coins*, pp. 107-109.

⁹⁷ Duncan-Jones, R., 'The monetization of the Roman Empire: regional variations in the supply of coin types', in G.M. Paul (ed.), *Roman Coins and Public Life under the Empire: E. Togo Salmon Papers, II*, Ann Arbor: University of Michigan Press 1999.

⁹⁸ See chapter 2, on eastern and western part of Asia Minor.

preferences of the people as well as the State for transactions either in coins or in goods.

Chronological Studies

The chronological analysis of numismatic material in different regions or throughout the Roman empire could help us estimate the fluctuations in the volume of production of silver, gold and bronze coinage. Although the coins that we found in excavations or in hoards are only a small proportion of the initial production, we could consider them as a random sample of the volume of coinage that was in circulation in antiquity. So far, different approaches have been used for the assessment of the production of coins in different periods or reigns.

The estimation of mint output during the Roman period relies almost exclusively on the study of coin finds, especially with the help of die studies⁹⁹, since no mint records survive from the Roman world and the literary sources do not illustrate the subject. It has been suggested that in order to calculate approximately the size of any individual issue one could count the known dies used to produce the surviving coins and multiply this number by an estimate of the quantity of coins struck per die. Different approaches concerning the calculation of the number of dies used as well as the number of coins struck by those dies have been expressed by various researchers¹⁰⁰. The results, so far, have not been conclusive and we still wait for a definitive study of the subject.

An alternative method is to extrapolate die estimates for the majority of issues from die studies of a few selected issues. The next step is to use the relative frequency of issues in hoards as an index of their original relative size¹⁰¹. Especially for Roman coinage there are more reasons for the use of extrapolation: a) The number of coins available is enormous, so, if you do not want to restrict yourself to the

⁹⁹ A recent bibliography on the debate concerning die studies can be found in Savio, A., 'La numismatica e i problemi quantitative: intorno al calcolo del volume delle emissioni', *Rivista Italiana di Numismatica e Scienze Affini* 98 (1997), pp. 11-48.

¹⁰⁰ On the methodology see Howgego, 'The supply and use of money', p.2; A general survey on the number of dies used to strike an issue has been written by Esty, W.W., 'Estimation of the size of a coinage: a survey and comparison of methods', *Numismatic Chronicle* 146 (1986), pp. 185-215. The closest possible reckoning of a single issue (23,333-27,250 coins per die) has been estimated by Kinns, 'The Amphictionic coinage reconsidered', *Numismatic Chronicle* 143 (1983), pp. 1-22.

¹⁰¹ Crawford, M.H., *Roman Republican Coinage*, Cambridge: Cambridge University Press 1974, section 7.

production of one mint of a specific emperor, then you have to extrapolate. b) Roman monetary history seems generally to be based on many hoards, which are helpful for extrapolation. If we chose this solution we should be very careful about the quality of the data, so that it could represent a random sample, which is one of the reasons for the comparison of the figures from more than one hoard. If we trace a generally similar pattern, then probably we will be able to reach the right conclusions¹⁰².

T.V. Buttrey thought that the above procedures are not acceptable because the poor quality of the ancient material does not allow its statistical analysis. When he expressed his views in two articles in the *Numismatic Chronicle*¹⁰³ he managed to initiate a strong debate, concerning the value of statistics in economic history. First of all, he assessed the methodological process followed by Michael Crawford and Keith Hopkins and subsequently declared their results fictitious because of the erroneous statistical methods that they used. He suggested that even a tiny variation in the extrapolation of dies could have enormous effects on the output while the rate of attrition is always variable. Therefore “there is no way, and never will be any way, to determine the size of the Roman coin stock at any time, in any place”. Some of the implications of die-studies that according to Buttrey prohibit the use of coins for the calculation of mint output are the following:

- We do not know the actual life of a die. After their continuous usage they wear out gradually or abruptly, developing cracks on the surface. The minting authorities decided when to replace them, according to the needs of the state, which varied from time to time.
- The nature of the flans also affects die-life. We have to take into consideration the diameter, the thickness, the quality of the metal and whether flans were struck cold or hot.
- The cutting of the dies is another factor. Longer dies, being more elastic, tend to have longer lives than shorter dies. Longer ones are also more difficult to hammer.

¹⁰² De Callatay, F., ‘Calculating ancient coin production: Seeking a balance’, *Numismatic Chronicle* 155 (1995), p. 289-311.

¹⁰³ Buttrey, T.V., ‘Calculating ancient coin production II: Why it cannot be done’, *Numismatic Chronicle* 154 (1994), pp. 341-352; Buttrey, T.V., ‘Calculating ancient coin production: Facts and fantasies’, *Numismatic Chronicle* 153 (1993), pp. 335-351, esp. pp. 338-339; Buttrey, S.E. and T.V. Buttrey, ‘Review Article: Calculating ancient coin production again’, *American Journal of Numismatics* 9 (1997), pp. 113-135.

- Dies are discarded not only when they are damaged but also when the information on them no longer holds. Under the Empire dies bearing titles of the emperor are rarely found recut.
- Extrapolation of dies is going to restrict our view of the material. In view of the fact that only an extremely low proportion of the coinage will be studied, our results may change the moment that we will decide to add new specimens in our studies.

De Callatay, who undertook the task of reviewing the above articles, decided to follow a milder approach¹⁰⁴. Specifically he suggested that the calculation of mint output by extrapolation of hoards is possible if we do not try to amalgamate them in one master hoard and if we exclude 'abnormal' hoards. He also believes that there is a possibility to estimate the number of coins struck by one obverse die, although he acknowledges the dangers deriving from such a procedure. Furthermore, according to de Callatay, an approximate calculation of the attrition rate does not give fictitious results, although we should accept a certain degree of error. In conclusion, he dismisses radical views that declare that 'all is wrong' and instead he suggests that the results from the study of coins could be used as best guesses for economic evaluations.

All in all, various problems could obstruct the procedure of estimating the annual mint output of coins, unless we use statistical analysis to indicate the magnitude of an issue only in general terms. If specific numbers are wrong, then we can only guess approximately the size of an issue and the extent of its circulation. It certainly cannot be used to make anything like detailed calculations or comparisons¹⁰⁵, but we can still use it for the study of the economy if we estimate the numbers of coins per emperor in more than one hoard and total up all of them across the hoards. Subsequently, we could count only the obverse dies of a small, extrapolated number of issues. The calculation of the number of obverse dies used for each *denarius* issue should be estimated in percentages. Finally, we could apply a suggested annual attrition rate of 2%-3% to correct the results, since every year a certain number of coins is irrecoverably lost¹⁰⁶.

¹⁰⁴ Callatay. 'Calculating ancient coin production', p. 289-311.

¹⁰⁵ Burnett, *Coinage in the Roman World*, p. 91.

¹⁰⁶ Crawford, *Roman Republican Coinage*, pp. 642-672. Although Crawford's figures are incorrect in detail, they are correct in their general trends, as it has been suggested by Lockyear, K., 'Hoard

Although the extrapolation of this sample seems to be ideal for the study of economic history, the truth is that it has not been possible to use this approach for the analysis of the hoards or excavation finds mentioned in my thesis mainly because existing publications are rarely interested in die studies and do not give relevant information. Moreover, I thought that I should avoid the statistical problems arising from die studies (as they were demonstrated repeatedly by Buttrey) and therefore I followed a safer path. Instead of expressing in numbers the annual coin output, I decided to observe the variations between the outputs of different reigns so that possible fluctuations in the volume of coinage will become apparent. The reasons for these fluctuations were sought among the political, monetary and military events that took place during a predetermined period.

The trustworthiest procedure is to divide our data chronologically by different imperial reigns and according to specific areas of the Roman Empire. The coins from every site or every group of sites should be arranged in chronological order and should be divided in clearly defined periods. So far, other researchers established for the Roman era certain periods that did not always take into consideration the length of the reigns of the emperors or in other cases they did not follow the natural chronological division of different reigns. In my opinion we should not try to put together two or more reigns, because every emperor faced problems in his own distinctive way and defined his own economic policy according to the existing financial situation. It would be advisable to estimate the percentages of lost coins per year, since different emperors reigned for a different length of time. Although the resulting number would normally differ from year to year, in our case it will represent, because of the lack of accurate evidence, only the average number of the coins minted during the reign.

The accepted formula is:

$$(\text{Number of coins per reign} / \text{length of reign}) * (\text{site coin total} / 100) = \text{annual average coin loss}^{107}.$$

Most researchers accept that the comparative statistical analysis of hoards, excavation finds and stray coins from local museums could demonstrate fluctuations in the annual production of coinage. 'Peaks' of coinage would become apparent in

structure and coin production in antiquity – an empirical investigation', Numismatic Chronicle 159 (1999), pp. 215-243.

¹⁰⁷ Casey, Understanding Ancient Coins, p. 89.

histograms that represent the percentages of coin finds per year of reign. Coins that were specifically found during excavations (mostly bronze) are probably a random sample of the initial volume of production. Although we do not know when they were lost, we can guess the magnitude of the volume of coinage that the emperors put into circulation during their reigns.

The volume of the production of coinage varied during different years or during different reigns according to the needs of the emperor or the needs of the market. For example, the number of precious metal coins seemed to increase when the emperor increased the payments of the soldiers or when he was getting involved in widespread military activities. On the other hand, the increase of silver and gold coins in circulation could instigate the process for the extensive minting of bronze coinage. We should always have in mind that the use of precious and base metal coins was interactive and all coins together constituted the Roman monetary system for the first three centuries of the Principate. So any changes in one currency would probably affect the other in order to balance the needs of the market for different currencies. The monetary reforms during the third century as well as the changes in the volume of coinages not only were the result of the political and military situation of the era but they also caused the reform of the monetary system as a whole. 'Peaks' of coinage from the eastern provinces in histograms help us locate the dates when significant changes took place as well as their importance.

Furthermore, the number of lost hoards also allows us to draw patterns of circulation and to connect them with major historical events. First of all, we should separate the peacetime distribution of hoards from the wartime distribution¹⁰⁸. We usually find more hoards that come from periods of war or political upheaval probably because the fear of an attack prompted people to bury their money, while death did not allow hoards to be recovered. Extensive brigandage or wars are the obvious causes that have been used by historians as reasons for the sudden discovery of an enormous number of hoards in a specific region. When the statistical analysis shows that hoards were lost more frequently during one period than during another, can we associate this period with certain military events. Of course, we should be cautious in case the events of this era were not well documented.

¹⁰⁸ Kent, 'Interpreting Coin Finds', p.192.

During peaceful periods hoards were also lost and not recovered by their owners. Most of these cases should probably be associated with the sudden death of the owner, instead of the conscious abandonment of the hoards. I find it hard to believe that people just discarded their money even if their value decreased. Besides, while the state prospers in peace, chaos and destruction could also occur because of natural events such as earthquakes, floods, plagues etc. If we compared their dates with the dates of most hoards that have been lost, then new patterns could emerge.

Even the absence or rarity of coins is considered important for numismatists. Such a scarcity may be explained either because a few coins were issued or because of a massive recall of the coins. Characteristic of this is the research on Alexandrian coinage during the reign of Septimius Severus¹⁰⁹. In our case, the scarcity of one type of coinage, e.g. gold, in the whole of the Roman empire during the third century (in comparison with the second century) should be studied. Another way to evaluate the absence of a certain kind of coinage (e.g. mainstream bronze coinage) in one region is by comparing it with the existence of a substantial number of coins in another during the same period. The differences or similarities of the two areas could lead us to conclusions related to their wider historical, political or economic background.

From the above we come to the conclusion that the most effective way to analyse the existing numismatic material is by studying it from a geographical and a chronological perspective. Geographical divisions help us locate different circulation pools between regions and subsequently determine the factors for the movement of coinage. On the other hand, chronological divisions are important for the study of yearly differences in the volume of coinage as well as monetary reforms in connections with specific political or military events. The combination of these studies will eventually help us demonstrate the role of coinage and its effect on the lives of the inhabitants.

CONCLUSIONS

In this chapter I tried to explain the way we study coin hoards, excavation finds and stray coins from local museums. The nature of the three types of

¹⁰⁹ Christiansen, E., *The Roman Coins of Alexandria: Quantitative Studies*, Aarhus, Denmark: Aarhus University Press, 1988, 285-287.

numismatic evidence could give us different information regarding the circulation of coinage in a region or during a certain period. These differences force us to assess them and treat them methodologically in a different way. For example, it seems that the time of the loss of hoards can be determined while we cannot know until when the coins found in excavations circulated. Then again, mainly coins from excavations or stray finds can demonstrate the accurate fluctuations in mint output during each reign and also illustrate the local circulation of bronze coins. The different treatment of hoards and excavation finds as well as the possible differences in the conclusions makes their comparative analysis necessary.

The problems imposed by the old and poor material are numerous and probably will always exist. The coins that we study today were issued and circulated in the provinces of the Roman empire almost two thousand years ago. Therefore we should always have in mind the fact that we study only a small sample of the ancient coins and that our conclusions could change one day if new coins are found. Statistical analysis should not be thought as the only answer to all our problems and it should always be used with caution.

Thousands of coins that come from the Roman period could allow modern researchers to study the monetary economic history of the Roman empire. Numismatic evidence of all kinds gives us information on the circulation of precious metal or bronze coinage in the eastern provinces, the volume of production during different reigns, the monetization of the different regions and finally the monetary integration of the empire. Although the value of coinage in the study of Roman economic history is important, it will not replace the study of other evidence (archaeological, literary, epigraphic). In the rest of the thesis I will try to overcome the problems arising from the use of numismatic or other data in order to describe effectively the monetary function of the economy in the Eastern Roman empire.

SPATIAL DISTRIBUTION OF PRECIOUS-METAL COINS

INTRODUCTION

An important aspect of the study of monetary economy is the analysis of the circulation of coins, which may be divided into two sections: time and space. When we talk of circulation in time we refer to the economic use of coins –gold, silver, bronze- that might last from a few minutes up to a century or even more, until they are permanently lost or hidden in hoards or melted down by the authorities or often otherwise withdrawn. Their life lasts according to their value or the political power of the issuing authority and economic circumstances. For example, bronze fiduciary coinage has been observed to circulate for long periods of time whereas pure gold or silver pieces were treated as bullion and melted, or hidden when a debasement occurred. On the other hand, when a state introduces its own coins it not only gives them a legal value, which may be different from their real value, but also a symbolic value because the coins represent the state or its head. If the political balance changes, then the coins may lose their significance and become mere pieces of metal.

Circulation in space describes the physical movement of coins over a particular area, in our case within the Eastern Roman empire. Coins travel within empires or outside them in relation to their value and use. There is a tendency for precious metal coinages to move in a wider area than bronze, mainly because of their different use; gold and silver are needed for the conduct of international trade or for the expenses of the State while civic bronze is used mostly in retail trade. In the following sectors I will describe the spatial distribution of precious metal coinage as it was formed during the first three centuries AD. Silver and gold coins seemed to circulate within different ‘pools’ in the eastern Roman empire and they tended to remain there, not facilitating the monetary integration of the empire.

There were nevertheless different forces throughout the Roman period that combined to put precious metal coinage in circulation and distributed it evenly. I would like to describe the role of different elements in the supply and distribution of coinage, their importance in the monetization of the empire and their effect on the final formation of different circulation pools. Our starting point should be the study of the actions of the central government, which was mainly responsible for the

production of coinage that would cover the immediate needs of the State. Coins were distributed by the emperor to the army and officials, as well as private citizens; these people used coinage in different ways. It seems that the proximity to Rome always affected circulation pools, which remained unaltered for years. The bulk of all these precious metal coins ended up in the treasuries of rich citizens, who amounted to no more than 1% of the inhabitants of the empire, as it will be shown later. They were senators, knights, freedmen or local magistrates, who used gold and silver coins as stored wealth or invested in profitable enterprises such as, agriculture, trade, banking activities, etc. All these enterprises contributed to the monetization of the regions to a different level and had various impacts on the local populations.

NUMISMATIC EVIDENCE

Our first attempt should be to establish patterns of circulation in the Eastern Mediterranean with the help of coin hoards, excavation finds and stray finds in local museums. These patterns will enable us to define the factors that affected circulation of coinage in different areas, and the role of the army and the merchants in the process of monetization. I thought it best to present the numismatic evidence in detail in the beginning so that, subsequently, I will be able to use general comments in order to extrapolate a broader theory on the circulation of precious metal coins.

First of all, differences between regions could be suggested if we analyse the structure of hoards found in each region separately. The fact is that if we pay attention to the following charts that demonstrate the structure of Caesarea Cappadociae, Goktepe, Iasos, Pergamos, Smyrna, Haydere, Yatağan, Eastern, Western Turkey 1 and Western Turkey 2 Hoards, we could find a pattern that characterises the circulation pool of the area of Asia Minor [chart 1]. Apart from Yatağan hoard and Eastern hoard which belong to the reigns of Gordian III and Trajan Decius respectively, the rest were lost during the reign of Gallienus. These show that the coinage that circulated in Asia Minor was coming from the mint of Rome, while only a few coins were minted in the East.

We should have in mind, though, that some of the hoards are not ‘normal’, since their structure differs from the majority of coin hoards. The Western Turkey 1 and Western Turkey 2 Hoards show an odd pattern, which reveals a sudden increase

of eastern coins during the reigns of Valerian-Gallienus. In order to explain this difference we should determine whether these hoards share the same characteristics as the rest or not. First of all, the fact that almost all the coins in the Western Turkey hoards were minted during the reigns of Valerian and Gallienus allows us to suspect that they were accumulated suddenly, possibly as payment during that period. Secondly, the western Turkey hoards contain mostly coins from Cyzicus, a city issuing coinage within the area where the hoards circulated, while in other silver hoards (except from the tetradrachm hoards) we find coins coming mainly from the mint of Rome. Probably the coins needed more time to travel and ended up hoarded in western Asia Minor. There is a possibility that new issues were produced in Cyzicus and released immediately in huge quantities for state payments or other reasons. The owner of the hoard could have been the receiver of such payment. Usually in hoards there are intrusions of coins from previous reigns, while there are not many coins that belong to the reign during which the hoard was buried. Since this is not the case here, we may exclude these two hoards because they are not typical for the area or the period.

Haydere and Eastern Hoards are also 'untypical' mainly because they contain a substantial number of coins minted during the Antonine period. In these cases someone could suggest that the hoards either were accumulated over a great period of time during which the owner might have died and his successor might have continued or that they are hoards that belonged to a collector. Their structure seems to be different from the structure of the rest of the hoards because it indicates an increased accumulation of coins from the Antonine period and the reigns of Septimius Severus and Caracalla.

The 'normal' hoards¹ that suggest a common circulation pool in Asia Minor and that could describe the typical structure of hoards buried during the period of Military Anarchy are the following: Caesarea Cappadociae, Goktepe, Iasos, Pergamos, Smyrna and finally Yatagan. All of them indicate lesser or higher peaks of coinage during the reigns of the military emperors and eventually they decrease during the reign of Gallienus. Some of them also show smaller peaks during the reigns of Septimius Severus and Caracalla.

¹ See chapter 1, for more details on 'normal' hoards.

The first time that I noticed a difference between the structure of Asia Minor and Syrian Hoards was when, accidentally, I noticed that two tetradrachm hoards of the period, Turkey 3 and Turkey 4 Hoards, which were found in Turkey, in fact did not have the characteristics of hoards from Asia Minor but of those from Syria [chart 2]. The number of coins increased during the reigns of Philip the Arab and Trajan Decius while we can also see an increase of coins during the Severan period and especially during the reign of Elagabalus. If we compare this chart with one, which describes the structure of the silver coin hoards found in Syria [chart 3], we might observe the same increase in the circulation of coins minted during the reigns of Caracalla and Elagabalus and later during the reigns of Philip, Trajan Decius and Valerian. Obviously the mints of Syria have started at the time to issue more coins used as payment for the troops that were fighting against the Parthians and Persians but also against various usurpers.

Statistical rules do not allow us to compare tetradrachm hoards of Syria with *denarii* hoards of Asia Minor; therefore we should concentrate our comparisons on *denarii* hoards of the two regions. The silver hoards from Asia Minor are very well represented, containing mostly *denarii* and *antoniniani*. Although their accumulation could have started during different reigns, the coins that have been attributed to each emperor until the time of Septimius Severus are only a few. Some of the hoards show a certain peak during Caracalla's reign (Eastern, Yatagan, Haydere Hoards) but after his reign they also decrease suddenly. All hoards show varying heights during the reigns of Gordian III, Philip, Trajan Decius and Trebonianus Gallus. The only exceptions to the above pattern are Yatagan Hoard, which finished during Gordian's reign and show a peak during Maximinus' period, and Western Turkey 1 and 2 Hoards, which form a peak of coinage during the reigns of Valerian and Gallienus².

Eighteen silver coin hoards were buried in Syria during the period of military anarchy; only three of them contained *antoniniani*: Dura Europos 14 Hoard from western Syria and Hama Hoard and Antioch 1 from eastern Syria [chart 4], neither of which contained coins of the Flavian or Antonine or even the Severan period. Only part of the Antioch 1 Hoard has been studied. All of the 450 *antoniniani* belonged to the reign of Trebonianus Gallus and came from the mint of Antioch. The Dura

Europos 14 Hoard consisted of 45 *antoniniani* which belong to the reigns of Trebonianus Gallus (11,11%), Valerian (68,89%) and Gallienus (20%). The coins came from Emisa (27), Antioch (14) and Rome (4). The Hama Hoard was found in Kefr Nebudi, Syria. It consisted of 596 *antoniniani*, dating from the reign of Philip I to Valerian. To the last one belonged most of the coins (85,91%). They came from Antioch (315), Cyzicus (277), and Rome (4). The structure of these Syrian hoards finds no parallels in Greek or Asia Minor hoards. We should also notice that the hoards from Syria not only contain coins that were produced during the later reigns but also that most of these coins, *antoniniani*, were produced in the east, a fact that could strengthen our argument about individual characteristics of the provinces concerning the distribution of money because of the high number of soldiers along the eastern frontier. Furthermore, if the study of the structure of coin hoards permits the establishment of a 'normal' hoard for one area, then we may be able to recognise the origin of a hoard even if we do not know exactly where it has been found. Of course, we should not rely on only two hoards but on a considerable number in order to find the 'normal' coin hoard for each region.

Since we cannot rely on the three *antoniniani* Syrian hoards alone in order to suggest differences between regions, we have to acknowledge that there are other hoards from the area that demonstrate significant differences between Syria and the rest of the provinces. A striking characteristic of the rest of the hoards lost in Syria is that they contain mainly tetradrachms. These tetradrachms did not circulate under any circumstances outside the province of Syria where they were produced. It is odd, though, when we consider the fact that the *denarii*, which circulated in Asia Minor, came from distant Rome whereas the tetradrachms were produced in neighbouring Syria. I would like to suggest that this happened possibly because Rome had the opportunity as well as the ability to send its coinage further than other mints, while a local mint such as Antioch could not distribute its coinage further than Syria. The solution to our problem may emerge if we take into consideration the role of the army in the supply and distribution of coins. Since the coin finds that we recover from fortresses are mostly tetradrachms (eg. Dura Europos) we could suggest that these coins were probably minted to be used as payment for the troops who were stationed near the borders of Syria with the East, while Roman Imperial coins were used for the

² See above, chart 1.

payment of the troops that were stationed in Asia Minor. It is possible that Roman military mechanisms accepted supplies of coinage from different mints that did not change over the years³.

Whether the money that was destined to pay the troops moved in the form of coins or whether official dies travelled and struck local supplies of silver has not been adequately studied yet, although some researchers have already suggested the latter⁴. We should take into consideration that no shipwrecks have been found containing adequate numbers of lost coins⁵ that would allow us to assume that Rome was shipping these to the provinces in order to be used as payments for the participants of the administrative or military mechanisms. On the other hand, a trip over land would have been not only dangerous but also time consuming and would have been advisable only in cases of emergency. One possible solution could be that the government was sending official dies in the provinces, where officers used either the facilities of already established local mints or created new ones, in order to issue precious-metal coinage. The establishment of a temporary mint demanded only two to three workers, their supervisor and a moderate building to accommodate them.

The structure of coin hoards from Greece differs even more than the structure of hoards from Asia Minor and Syria. The most important feature of the Greek circulation pool is that the number of silver coin hoards is extremely small (only 5 for the period of Military Anarchy)[chart 5]. All of these hoards share one common characteristic that sets them apart from most hoards buried in Asia Minor and Syria: they do not include any coins from the Severan or Antonine period. Since we cannot speculate that these coinages never circulated in Greece, in this case, we should take into consideration the circumstances under which third century coins were produced and the effect of political and economic changes in circulation. We know that repeated debasements that took place throughout the first half of the third century, probably, caused the melting of previous issues of higher fineness and the production of coins of lower fineness. It is possible that Severan and Antonine coins did not survive the recoinages of the military emperors and they were withdrawn from circulation sooner than the coins that circulated in eastern provinces. If so, this act

³ See chapter 3, for Syrian tetradrachms.

⁴ Metcalf, W.E., The Silver Coinage of Cappadocia, Vespasian-Commodus, New York: American Numismatic Society 1996, p. 85.

⁵ See n. 121 for Roman coins found in shipwrecks.

was probably due to the proximity of Achaëa and Macedonia to the mint of Rome. Since Asia Minor and Syria lay further apart, new coins needed more time to reach these areas and old coins needed even more time before they returned to the central mint in order to be melted down⁶.

Unlike silver hoards, other numismatic material coming from excavations that took place in Greece and Asia Minor does not allow us to reach the same conclusions. The structure of coin finds coming from the excavations of three different ports, Corinth and Patras (Greece) in comparison with Ephesus (Asia Minor), shows us the development of a pattern that demonstrates distinct similarities [chart 6]. For example, only a handful of coins comes from the Antonine period, a short peak is formed during the reigns of Septimius Severus and Caracalla, while most of the coins come from the reign of Gordian onwards. Different explanations can be applied in this case. First of all, the character of the above sites is the same, since all of them were well-known harbours, where international trade was conducted. Probably traders commuted from one port to another exchanging their products as well as their money. Almost the same structure is indicated by the coin finds from another port, Athens [chart 7]. There is also another major harbour that indicates the same structure in the circulation of coins. A list of the silver coins in the museum of Rhodes indicates that the structure of coin finds revealed on the island was the same as the structure of coins coming from the sites of Ephesus and Patras and similar to the structure of coin finds from the ports of Athens and Corinth [chart 8].

Further study of the coins from Greek and Asia Minor museums has revealed that there were individual circulation pools that were not necessarily affected by geographical barriers or by the borders of the provinces. One major circulation pool is that of Northern Greece and Asia Minor. The structure of the coin finds in the museums of Komotini, Volos, Corfu and Sinop shows that the structure of coins was similar [chart 9]. All of them indicate peaks in the volume of coinage during the reigns of Trajan and Marcus Aurelius. During the Severan period we can see one small peak during the reigns of Septimius Severus and Caracalla, but the higher peaks

⁶ Duncan-Jones, R., *Structure and Scale in the Roman Economy*, Cambridge: Cambridge University Press 1990, pp. 7-29. He mentions that letters from Rome to Asia Minor arrived one to three months later. Hadrian's letter to Stratonicea in AD 127 arrived 75 days later (FIRA I. 80). If the movement of a letter took so long then we should expect the movement of coinage to be even more time consuming.

come from the reigns of Elagabalus, Gordian III, Trajan Decius, Valerian and Gallienus.

The unity of the pattern is disrupted by the coin finds in the museums of Thessalonica (Central Macedonia) and Yiannena (North-western Greece). The Thessalonica structure of finds indicates smaller peaks during the reigns of Trajan, Hadrian and Antoninus Pius, while higher peaks are formed during the reigns of Commodus, Septimius Severus, Gordian III and Philip the Arab [chart 10]. The anomalies of the pattern of coins from the museum of Thessalonica could be explained if we take into consideration that it is a central museum that accumulates coins, which do not necessarily come from local sources. The coin finds in Yiannena museum could only suggest that it belonged to a different circulation pool probably because of the geographical isolation of Epirus [chart 11]. The coin finds indicate small peaks during the reigns of Hadrian, Commodus and Elagabalus. The volume of coinage increases gradually from the reign of Gordian III, in order to reach its highest peak during the reign of Trajan Decius. Subsequently it declines gradually until the reigns of Valerian and Gallienus.

Southern Asia Minor forms another circulation pool. A study of the coin finds in the museums of Fethiye, Afyon and Yalvac indicates acute similarities [chart 12]. The structure of coin finds from all of these museums is characterised by the even distribution of coinage during the Antonine period and small peaks during the reigns of Septimius Severus, Caracalla, Macrinus, Elagabalus and Severus Alexander. The volume of coinage reaches its highest peak during the reign of Gordian, after which it gradually declines.

As we have seen, Greece, Asia Minor and Syria demonstrate differences as well as similarities in the circulation of silver coinage. The regions around the eastern Mediterranean Sea are divided in circulation pools such as the Southern Aegean Sea, Northern Greece and Asia Minor, and finally southern Asia Minor. It seems that the creation of these pools was not affected by political or geographical reasons, since their limits do not follow the borders of the provinces or the lines of mountains and rivers. Consequently, it is imperative to locate the reasons for the similarities or dissimilarities in the movement of silver and gold coins elsewhere.

1) STATE EXPENSES

The emperor who produced coinage did not keep it stored for the benefit of the Roman treasury. On the contrary, he coordinated the supply and distribution of newly minted coins to the population in various forms. The questions that immediately spring to mind are: How did the Roman government put gold and silver coins into circulation? Did it ever permit private owners to bring gold and silver bullion to the mint for coinage? Did it have to depend on private bankers that would buy the precious metal coins from the state and subsequently sell them, in return for a premium?⁷ Considering the profit from the exchange of coins, I would be inclined to suggest that the central government retained the right to forward its own coinage directly to the public without the involvement of any intermediaries. If we assume that there was no right given to private owners of gold and silver to ask for coinage at the mint, the only way the government could put coins into circulation, unless it simply gave them away, was in payment for obligations or as replacements of older worn coins.

We know that State expenses were met in both gold and silver coins and sometimes even in bronze. Since the State was the main force that put precious metal coins into circulation it would be useful to try to estimate the scale of its actions and its effect on the individual circulation pools. Furthermore, it would be interesting to estimate the volume of coins in circulation in different areas in accordance to the activities of the army, since someone could suggest that the more money the emperor managed to pay out, the higher the scale of monetization of the empire could have been.

a) Army

It is important to study the army not only as a major element in State expenditure but also as an important factor in the even or uneven distribution of coinage and also the monetization of the empire. In the following paragraphs, I intend to assess the

⁷ See chapter 5, for a brief analysis of the banking system.

economic role of the army and to raise some questions on its significance based on the numismatic material found in excavation sites or as parts of coin hoards.

It has been suggested that the main imperial expense was the payment of the army that initially put precious metal coins into circulation. Accordingly, the loss of a substantial number of coin hoards on the Danube frontier was thought to be the immediate effect of the new military establishments in the area⁸. Since soldiers were highly paid and they eventually spent their money in the local markets, they were responsible for the monetization of the areas near the frontiers. The army was also characterised by high mortality rates, which had as an effect the loss of more coin hoards in or around the Roman fortresses. Patterns of wars sometimes coincide with patterns of lost hoards in certain areas of the empire where military activities are extensive⁹.

The role of the Roman army, though, changed radically after the reign of Augustus. The emperors did not seek to expand their territory (apart from a few such as Trajan, who was responsible for wars near the northern frontier and Parthia) but aimed instead at protecting the existing borders of the Roman empire and defending the frontier against invading barbarians; therefore they avoided military encounters. Although the imperial policy changed and probably fewer soldiers faced death throughout their career, the number of soldiers and their duties remained as important as before since they still had to face the barbarians as well as the brigands that raided the provinces.

An attempt to assess the effect of the army on the imperial budget and the annual mint output is especially important if we want to study the way it eventually affected the monetization of the empire. Soldiers who belonged either to legions or auxiliaries and their officers could have reached a maximum of 500,000 men during the second and third centuries¹⁰, although opinions on the exact number vary. Still, it has been suggested that in the earlier imperial period military costs within the overall budget were held stable; therefore in relative terms they sharply diminished from some 50% of the imperial budget to 33 % or less¹¹. Of course the imperial budget represented

⁸ Lockyear, K., A Statistical Analysis of Roman Republican Coin Hoards with Special Reference to Material from Romania, Ph. D. thesis, London 1996. See the analysis of coin hoards from Romania.

⁹ See chapter 1.

¹⁰ MacMullen, R., 'How big was the Roman imperial army, *Klio* 62 (1980), pp. 451-460.

¹¹ MacMullen, R., 'The Roman emperor's army cost', *Latomus* 43 (1984), pp. 570-580.

only a part of the Gross National Product, which would be impossible to be estimated unless we also take into consideration private income. If the population of the empire was 50,000,000 people or more, the number of active soldiers surviving upon state payments was obviously rather low¹².

The form of their payment, which was mainly in coined money, differed according to the military body to which soldiers belonged or the rank of the officer¹³. During the first century AD the *stipendium* of an infantryman was 225 *denarii* per year¹⁴, but it was increased to 300 *denarii* by Domitian¹⁵ and remained stable until the end of the second century. The next substantial increase, which is not quantified in the ancient sources, came under Septimius Severus¹⁶. Another increase took place during the reign of Caracalla, but, although he doubled the pay of the soldiers,¹⁷ this was not enough and was followed by a third rise in 234 when Maximinus Thrax once again doubled the pay of the troops. Recently it has been suggested that the *aureus* played an important part in army pay in the imperial period. The government's calculations as to the level of military pay seem to have been made in *aurei*¹⁸ although the soldiers usually received more easily exchangeable monetary units, such as *denarii*.

We should not think that all the *stipendia* were actually paid in the form of money. On the contrary, deductions were made even before the coins reached the camp. The first century pay records show that 80 drachmae of the *stipendium* before AD 84 and 100 drachmae thereafter were kept back for food. Deductions, which represented about 40% of the basic *stipendium* of footsoldiers, were made also for hay, boots and socks, and there were also contributions towards the camp Saturnalia

¹² For details on the size of population see Beloch, J., *Die Bevoelkerung der griechisch-roemischen Welt*, Leipzig: Duncker & Humblot 1886; For recent estimations see Lo Cascio, E., 'The size of the Roman population: Beloch and the meaning of the Augustan census figures', *Journal of Roman Studies* 84 (1994), pp. 23-40; For age and mortality rate in the Roman empire see Scheidel, W., *Measuring Sex, Age and Death in the Roman Empire: Explorations in Ancient Demography*, Ann Arbor: Journal of Roman Archaeology 1996; Parkin, T.G., *Demography and Roman Society*, John Hopkins University Press: Baltimore/London 1992; Hopkins, K., 'On the probable age-structure of the Roman population', *Population Studies* 20 (1966), pp. 245-264.

¹³ Breeze, D.J., 'Pay grades and ranks below the centurionate', *Journal of Roman Studies* 61 (1971), pp. 130-135.

¹⁴ Tacitus, Ann. I, 17.

¹⁵ Cassius Dio 67.3; Suetonius, Domitian 7.3.

¹⁶ Herodian 3.8.4; SHA, Severus 12.2.

¹⁷ Herodian 4.4.7.

¹⁸ Alston, R., 'Roman military pay from Caesar to Diocletian', *Journal of Roman Studies* 84 (1994), pp.113-123.

and the standards; this amounted to roughly three-quarters of the annual pay¹⁹. The rest of the money was paid into the soldier's account and represented his pocket money paid to him in cash²⁰. Since Roman soldiers received their annual pay in three instalments, due on the first of January, May and September, we might suppose that a primitive bookkeeping and maybe credit system existed²¹. We have evidence that, although sometimes the amount of money that was in a soldier's pay record was not always available to him²², there are instances of advanced payments to individual soldiers who happened to be in need²³. The flexibility of this system was designed to prevent any potential cash problems that might have arisen among the ranks.

The *stipendium* was complemented by various *donativa* paid in cash by the emperors and representing part of their ceremonial expenditure, e.g. at the time of their accession. Most donatives were paid in gold or silver until at least the third century AD, by which time soldiers could receive donatives of the magnitude of four *aurei* and one pound of silver, while officers and officials were rewarded with much greater gifts. Nonetheless, emperors after Severus Alexander handed out *aurei* in numbers that exceeded donatives of the second century²⁴, a gesture that indicates a) the need to maintain a loyal army during this restless period by bribing the men with as many gifts as possible and b) the importance of gold and silver bullion in contrast to the debased billon coinage that constituted the *stipendium*.

In addition to army salaries, there were discharge-bonuses, *praemia*, after the soldiers completed 25 years of service or more. It has been estimated that the mortality rate of these men reached a level of 44-55 % by the end of their service. If the amount of the *praemia* was fixed at 12,000 *sestertii* per person²⁵, then the State spent more than 1,188 million *sestertii* a year by the reign of Caracalla²⁶. The

¹⁹ Speidel, M.A., 'Roman army pay scales', *Journal of Roman Studies* 82 (1992), pp.87-106, esp. pp. 93-97.

²⁰ Watson, G.R., 'The pay of the Roman army: The auxiliary forces', *Historia* 8 (1959), pp.372-378, esp. pp. 376; Boren, H.C., 'Studies relating to the *stipendium militum*', *Historia* 32 (1983) pp. 427-460, esp. p. 454.

²¹ Fink, R.O., *Roman Military Records on Papyrus*, Cleveland: American Philological Association 1971.

²² Kaimio, J., 'Notes on the pay of Roman soldiers', *Arktos* 9 (1975), pp.39-46.

²³ Speidel, Roman army pay, p.91.

²⁴ Harl, K., *Coinage in the Roman Economy, 300 BC to AD 700*, Baltimore and London: John Hopkins University Press 1996, p.222-223.

²⁵ Dio 55.23.

²⁶ Duncan-Jones, R., *Money and Government in the Roman Empire*, Cambridge: Cambridge University Press 1994, p.34-37.

veterans probably used this money in order to buy land or estates that would allow them to live respectably for the rest of their lives.

The deductions that were made to *stipendia* during the first two centuries were no longer necessary during the third because of the *annona*, which covered individual expenses for food, clothing, fodder and military equipment. Septimius Severus, at the end of the second century AD, favoured the practice of *annona militaris* in order to institute a pay rise and provide a steady increase to the soldier's income²⁷, avoiding at the same time increasing the *stipendium*, which had to be paid in coins. The soldiers now had more coins to spend in retail trade than ever before, since both the *stipendium* and the *donativa* had been increased. There was, therefore, not necessarily a shift towards a natural economy, due to the establishment of the *annona*, as has been suggested²⁸. J.P. Callu cites a document of AD 247 according to which Aurelius Didymus paid six drachmas as his share of the *annona*. He assumes that while grain requisitions were usually exacted in kind, requisitions in wine and other goods were exacted in coin²⁹. In this case we may suspect that the *annona* did not undermine the monetization of the Roman world, since it was just another tax paid to the government either in coin or in goods according to the capacity of the taxpayer.

During the first two centuries, when the system of the *annona* was not in use, a supply system had been established, which enabled citizens to involve themselves in active trade with the army. Such a supply entailed: (a) the transport of goods to military posts and (b) the production and sale of goods to the soldiers, providing a source of income for private traders and contractors. The supply system was conducted either in the form of requisitions, or as purchases at a set rate, which would be provided or collected through procurators. In normal circumstances, the soldier would buy goods from shops and inns that grew up in and near army camps, unless he was on campaign at a distant place³⁰. Troops on the move could carry food for themselves and for a small cavalry contingent for a period of only a few days, before

²⁷ Develin, R., 'The army pay rises under Severus and Caracalla, and the question of *annona militaris*', *Latomus* 30(2), 1971, pp. 687-695.

²⁸ Van Berchem, D., 'L' annone militaire est-elle un mythe?', in A. Chastagnol, C. Nicolet and H. van Effenterre (eds.), *Armées et fiscalité dans le Monde Antique, Colloque National du Centre National de la Recherche Scientifique, au Centre Universitaire Tolbiac de Paris I, 14-16 Octobre 1976*, Paris: Edition du Centre National de la Recherche Scientifique 1977, pp. 331-334, esp. pp. 332-333.

²⁹ Callu, J. -P., *La politique monétaire des empereurs romains de 238 à 311*, Paris: Bocard 1969, pp.291-293

requiring a baggage train that would itself need its own supplies. Although the prices for all these purchases might have been reduced in comparison to regular market prices, they still demanded a great amount of money to be transferred from one person to another.

The *stipendium*, *annona*, *donativa* and *praemia* indicate the substantial amount of money spent on the army during peaceful periods, and even more during war periods. We should take into account that wars increased military expenses throughout the empire, especially after the reign of Augustus, when wars became mostly defensive. The main imperial policy was to defend the frontiers against barbarian tribes and not to expand their territory. This choice would probably bring no profit to the treasury, because no bullion would be acquired from newly conquered land. The last profitable war was against the Dacians during the reign of Trajan. Later emperors were anxious to buy their way out of expensive military campaigns by bribing the tribes with pure gold or silver either in the form of coins or in the form of bullion. Third century campaigns against the Parthians, though, combined with destructive civil wars brought to the empire both bankruptcy and disgrace.

The significance of the army in the imperial financial policy could become obvious if we consider carefully the numbers given above³¹. We know that Roman troops travelled throughout the empire in order to settle eventually near the frontiers. The places where the existence of soldiers is attested were thought of as highly monetized areas because the army, paid in coins, subsequently facilitated trade and other economic activities. The army's importance as an instigator of the circulation of coinage and the monetization of the empire, though, is not self-evident. The existence or absence of numismatic evidence sometimes shows that the effect of the army in certain areas was only marginal if other factors, such as trade, did not exist on a large scale. A comparison between the Eastern and Northern frontier could clarify the problem.

Our sources indicate that during the first three centuries the bulk of the army was stationed near the Roman frontiers in order to defend the empire. So, we would expect most of the money intended for army expenses to be spent near these frontiers.

³⁰ Adams, C.E.P., 'Supplying the Roman army: O.Petr.245', *Zeitschrift für Papyrologie und Epigraphik* 109 (1995), pp. 119-124, esp. pp. 120.

³¹ See chapter 3, for role of the army concerning inflation.

It is true that a great number of coin hoards and an equally large number of stray and excavation finds were revealed close to the Danube³². Usually they are interpreted as a class of evidence, which when they are recorded chronologically and spatially, indicate a concealer's fear of loss and his incapacity for recovery. When coin hoards are found in or near destroyed forts, the evidence for barbarian assaults seems to be compelling. If these assaults cannot be proved then the assumption that the intruders were Roman soldiers involved in a civil war seems plausible³³.

However, there is no evidence to suggest the same for the Eastern frontier, in Asia Minor and Syria. So far only one hoard was positively identified as coming from this area³⁴. Furthermore, coin finds from excavations of forts or surveys in the region have not yet been discovered in adequate numbers (apart from Dura Europos, which will be mentioned later as an individual case). Only a handful of coins were found in sites near the frontier while only a few of those belonged to the Roman imperial period. Such sites are Seh Qubba³⁵ - a military post in Northern Iraq, overlooking the Tigris-, Melitene³⁶ - a legionary fortress southeast of Turkey from where a survey yielded no coins-, Zeugma³⁷ - a fortress lying astride the Euphrates, from where there are insufficient coins to analyse and make comments on circulation-, also Paḡnik Oreni and Dibsi Faraj³⁸ -two sites on the Euphrates frontier which, although excavated, did not produce more than a handful of 1st to 3rd century coins from the

³² Göbl, R., Die Fundmünzen der römischen Zeit in Österreich, III, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1976; Schmidt-Dick, F., Die Fundmünzen der römischen Zeit in Österreich, II/3, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1989; Dick, F., Die Fundmünzen der römischen Zeit in Österreich, IX, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1978; Bannert, H. and Piccottini, G., Die Fundmünzen von Magdalensberg, Klagenfurt: Verlag des Landes museum f. Kärnten 1972.

³³ Okamura, L., 'Coin hoards and frontier forts: Problems of interpretation', in H. Vetters and M. Kandler, Akten des 14 Internationalen Limeskongresses 1986 in Carnuntum: Der römische Limes in Österreich, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1990, pp.45-47.

³⁴ Eastern hoard is described above.

³⁵ Ball, W., 'Seh Qubba, A Roman frontier post in Northern Iraq', in D.H. French and C.S. Lightfoot (eds.), The Eastern Frontier of the Roman Empire, Proceedings of a Colloquium Held at Ankara in September 1988, I, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989, pp. 7-18.

³⁶ Sevin, V. and Derin, Z., 'A fortified site to the east of Malatya', in D.H. French and C.S. Lightfoot (eds.), The Eastern Frontier of the Roman Empire, Proceedings of a Colloquium Held at Ankara in September 1988, ii, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553 (ii), Oxford 1989, pp.437-460.

³⁷ Kennedy, D., The Twin Towns of Zeugma on the Euphrates: Rescue Work and Historical Studies, Journal of Roman Archaeology, Suppl. 27, Portsmouth 1998, pp. 235-6.

³⁸ Harper, R.P., 'Two excavations on the Euphrates frontier 1968-1974: Paḡnik Oreni (Eastern Turkey) 1968-1971, and Dibsi Faraj (Northern Syria) 1972-1974', in D. Haupt (ed.), Studien zu den Militärgrenzen Roms: Vorträge des 10. internationalen Limeskongresses in der Germania Inferior, II, Köln/Bonn 1977, pp.453-460.

Caesarea Cappadociae mint. Even in some excavations of forts in the province of Syria, such as el-Lejjun and Qasr Bshr³⁹ -near the Limes Arabicus- and Qasr el-Hallabat⁴⁰ in North East Jordan-, no coins were found.

Until now the army was thought to be one of the main forces that stimulated the monetization of the empire. D.L. Kennedy, the editor of the archaeological survey at Zeugma, is convinced that *legio X Fretensis* which was stationed in the fortress «would have been crucial for the town's economy and have impacted on the rural economy, where farmers might have turned to cash crops, leaving the general grain-supply to special arrangements made by the army for his own needs». He also believes that «the departure of the troops would have removed the injection of large and regular sums of cash into the local economy and those who catered for the military market would have been affected»⁴¹. If this is the case, how is it possible to explain that in spite of the abundance of late Roman and early Byzantine coins among the finds from Syrian sites, Roman coins are very poorly represented among the finds from the eastern frontier? Moreover, how can we give an explanation for the lack of coinage in Roman forts and other military posts in the region? Obviously we should approach the problem in a different way, relying mostly on the lack of evidence instead of its abundance.

In order to explain the lack of coin finds from the military sites of Syria and Asia Minor, we should take into consideration the factors that allowed the army to initiate the process of the monetization of the provinces near the northern frontier in order to understand the opposite factors that did not allow the expansion of this phenomenon near the eastern *limes*. The Northern frontier was established in order to protect Roman provinces from any future 'barbarian' attacks. The army that was sent there for the defence of the region was stationed initially in camps, which were transformed later into powerful fortresses. Because the soldiers could not have survived away from the society for long, they created their own 'society' including their families, merchants, administrators and other entrepreneurs. Topographical details of Danube legionary bases show us that around each fortress was a civilian

³⁹ Betlyon, J.W., Coins, Commerce, and Politics: Coins from the Limes Arabicus Project, 1976-1985, pp. 655-689.

⁴⁰ Kennedy, D.L., Archaeological Explorations on the Roman Frontier in North-East Jordan: The Roman and Byzantine Military Installations and Road Network on the Ground and from the Air, BAR International Series 134, Oxford 1982, pp.17-68.

settlement, the creation and development of which ran parallel with that of the fortress itself. The Roman citizens who had established themselves in this settlement formed the pseudo-autonomous corporate body of *cives Romani consistentes ad legionem*. Such civil settlements, later called *canabae*, shared the neighbouring cemeteries with the military. At least one Roman mile from such a settlement and fortress there would be another civil settlement with its own cemetery. It was this second settlement at a distance from both *canaba* and fortress that became a *municipium*. Settlements *ad legionem* were established on land which was not only owned but also administered by the military. There lived entrepreneurs, soldiers' relatives, veterans and other foreigners⁴².

The Northern frontier gradually attracted a great number of people who were determined to reside in the immediate area. This situation was probably noticed by the central government, which decided that these groups should be organised into cities so that they could be effectively controlled and administered. The foundation of colonies was initiated by the Flavians and was based either on the settlement of veterans or on existing settlements of Roman citizens who had come in from outside the province. The Flavian-Trajanic period was one of massive movements of population, but it was not until Hadrian that this formed the nucleus of an urbanisation policy. Without exception all the towns founded both by the Flavians and by Trajan were sited on two roads, which, at that time, were losing their importance in relation to the Danube road. By contrast, the movement of populations of the Flavian-Trajanic period was affecting the frontier zone where urbanisation had not yet begun⁴³.

The newly established markets -taken over by settlers- which were the result of rapid social and economic developments in the first century AD led to the growth of trading contacts with the hinterland which in turn stimulated new, specialised extra-territorial trading centres. The market area would then become too large and satellite markets sprang up besides the lower order settlements. Trade flourished and the complexity of its organisation suggests that the process of urbanisation was developing rapidly. We have to underline, though, the fact that trade was also supposed to provide the basic goods necessary to sustain the army. The establishment

⁴¹ Kennedy, *The Twin Towns of Zeugma*, p.239.

⁴² Mocsy, A., *Pannonia and Upper Moesia: A History of the Middle Danube, Provinces of the Roman Empire*, transl. ed. by Sheppard Frere, London/Boston: Routledge 1974, p. 139-140.

⁴³ Mocsy, *Pannonia and Upper Moesia*, p. 119.

of the string of Roman garrisons along the northern frontier resulted in a great concentration of populations, which arrived suddenly and demanded immediate and adequate provision of food and thus created a network for general supply. The Roman army was heavily dependent for its food supplies on pre-existent central places, where local production was concentrated and where a market economy with long distance trading networks was fully functional⁴⁴. I suspect that soldiers participated actively in the process of buying goods through market-mechanisms with the use of their own coins. This process is also suggested by the existence of a great number of coin finds from excavations and coin hoards from the immediate area.

The presence of the Roman army near the borders of the eastern part of the empire did not affect in the same way the region of Asia Minor and its population. Asia Minor is often regarded as a region without significant military garrisons, but this is to ignore the evidence which suggest that legions were stationed on both sides of the provincial boundary (although the bulk of the army was stationed inside the borders). The routes, which traversed Phrygia between the provinces of Asia and Galatia, were also well guarded probably for the fear of bandits. The legions in the East ranked second in total strength to the Danube forces. Although the opinions differ, it seems that at least two legions were stationed in Cappadocia, three in Syria, two in Judaea, one in Arabia and one in Egypt⁴⁵. Legionary fortresses lay on the left bank of the Euphrates: Zeugma and Samosata belonged to the province of Syria, while Melitene and Satala were in the province of Galatia-Cappadocia. Furthermore, six smaller forts existed along the river between Satala and Melitene. This evidence may suggest that the eastern frontier was as elaborately organised as the frontier system in northern Europe⁴⁶. Although the exact locations as well as the composition of the military units of Syria and Mesopotamia, especially during the third century, are

⁴⁴ Groenman-van Waateringe, W., 'Urbanization and the north-west frontier of the Roman empire', in W.S. Hanson and L.J.F. Keppie (eds.), Roman Frontier Studies 1979: Papers presented to the 12th International Congress of Roman Frontier Studies, III, BAR International Series 71(iii), Oxford 1980, pp. 1037-1044, esp. pp. 1038-1041.

⁴⁵ Mitchell, S., 'The Balkans, Anatolia, and Roman armies across Asia Minor', in S. Mitchell (ed.), Armies and Frontiers in Roman and Byzantine Anatolia: Proceedings of a Colloquium held at University College, Swansea, in April 1981, British Institute of Archaeology at Ankara, Monograph No. 5, BAR International Series 156, Oxford 1983, pp. 131-150, esp. p. 132.

⁴⁶ Mitchell, S., Anatolia: Land, Men, and Gods in Asia Minor, I, Oxford: Clarendon Press 1993, pp. 119 and 121.

unknown and somewhat speculative⁴⁷, we should have no doubts about the great strength of the forces in the East.

The obvious question is why was the effect of the army less significant in this area than in the Balkans? It has been acknowledged that the eastern provinces of Asia Minor - Cappadocia, Armenia, Mesopotamia - were not as urbanised as the western provinces. The cities in this area could have been less in number but the fact is that these regions were more urbanised than the regions near the Danube frontier before their annexation. Only the province of Mesopotamia, which seems to have had the lowest degree of urbanisation among the eastern provinces, attracted the attention of the emperors who planted there a notable number of colonies. They were probably real colonies of veterans and were intended to serve as permanent garrisons⁴⁸. Also at a few places such as remote Satala and Melitene the legions seem to have built themselves the substitute cities that were, at the same time, regularly planned fortresses mainly because there were not any other established cities in the area⁴⁹.

We should seek the reasons for the failure of the army to play a significant role in the urbanisation of the eastern frontier. The already rapid expansion and the economic growth of the cities of the area, the prosperous agricultural activities and the international trade that allowed the growth of the countryside took place before the troops were stationed near the limes⁵⁰. Although most of the villages remained scattered, they still had the size of a small city and they functioned administratively in almost the same way.

On the other hand, dense urban networks and substantial centres existed in the Aegean region and in the eastern Mediterranean even during the Hellenistic period. The uneven distribution of cities of all sizes at least throughout the eastern Mediterranean indicates the absence of imperial power in the foundation of new cities. But it seems that the power of the Roman emperors did not need to expand the colonisation of Asia Minor and Syria. On the contrary, a glance at the west could

⁴⁷ Kennedy, D.L., 'The garrisoning of Mesopotamia in the late Antonine and early Severan period', *Antichthon* 21 (1987), pp.57-66.

⁴⁸ Jones, A.H.M., *The Cities of the Eastern Roman Provinces*, special edition, Oxford: Clarendon Press, p. 221.

⁴⁹ Hodgson, N., 'The East as part of the wider Roman imperial frontier policy', in D.H. French and C.S. Lightfoot, *The Eastern Frontier of the Roman Empire: Proceedings of a Colloquium Held at Ankara in September 1988*, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989, pp. 177-189, esp. pp. 178-181.

indicate that the even distribution of cities was the result of the interference of the emperors who repeatedly founded colonies and *municipia*, thus accelerating the urbanisation of these areas⁵¹.

If the army was partly responsible for the urbanisation of the West we should expect the same phenomenon to be attested in the East. The army's inability to play the same role in the urbanisation of the eastern provinces could be explained if we try to evaluate the commercial activities and the way they affected the eastern frontier in contrast with the trade and its influence in the Balkans. As we have already seen, trade routes were essential near the Danube frontier in order to sustain a regular and convenient system for the movement of goods (necessary to the legions) from other provinces or other regions within the same province. These routes later facilitated trade among civilians as well as soldiers, a fact that eventually allowed the increase of the monetization in the area. On the other hand, supplies for the army also reached the Eastern frontier, probably through an elaborate network of roads. Our evidence shows that the existing cities of Asia Minor were required to support expeditionary armies not only as they crossed Anatolia on the way to the front, but also when they reached their bases in Syria. This system involved all the local cities and villages that were situated near the frontiers or even on the Anatolian plateau. The liturgy of provisioning officials and armies was not restricted to grain but could also involve clothing and other commodities. These communities also had the duty to provide transport, provisions and hospitality to the troops, officials, and perhaps most of all, emperors on the move⁵². The situation, as expected, was perceived as a distinct economic burden and could only cause frustration to the population. In fact, the increased commercial opportunities, which the passage of troops offered, were outweighed by the oppressive demands that were imposed on the community as a whole⁵³.

The Roman army in the East -at least in Asia Minor- in comparison with the troops stationed near the Danube frontier did not seem to act as a stimulus for any kind of commercial activities. The roads themselves, although highly developed,

⁵⁰ Tate, G., 'The Syrian countryside during the Roman era', in S.E. Alcock (ed.), The Early Roman Empire in the East, Oxbow Monograph 95, Oxford 1997, pp. 55-71, esp. pp. 60-64.

⁵¹ Woolf, G., 'The Roman urbanization of the East', in S.E. Alcock (ed.), The Early Roman Empire in the East, Oxbow Monograph 95, Oxford 1997, pp. 1-14, esp. p. 10.

⁵² Mitchell, 'The Balkans, Anatolia and Roman armies', pp.142-143.

would have brought little benefit to private traders, for whom long-distance overland trade remained prohibitively expensive. The roads that brought supplies to the armies were rarely used for other reasons unless these reasons involved a short distance from the sea to the nearest market. The nearest ports to the eastern frontier were the ports of Cilicia and northern Phoenicia. The traders, who came from the Mediterranean Sea, probably unloaded their cargo in these harbours and then they continued their journey over land. Apart from the fact that it is extremely difficult to cross the Taurus Mountains in Cilicia, they also had to face difficulties when they reached the borders, because the river Euphrates is not navigable. Moving their goods from one fort to another over land until they sold them must have been very hard. The geographical difference that affected trade in eastern Asia Minor and along the Balkan frontier is the existence of the navigable river Danube along the second, which allowed traders to move easily and fast. When merchants reached the port of Aquileia they had to unload their goods and they continued on foot until they reached Danube. From there they probably followed the riverine route. Since such a luxury did not exist in Asia Minor, we should anticipate the lack of significant established markets in this area and we should also acknowledge the fact that the army did not always have the power to initiate any commercial activities. Soldiers purchased only a minimum amount of goods from the peasants who lived around the camps while most of their needs could have been covered by the central supply system administered by the government. So, the lack of long-distance trade as well as markets is mainly responsible for the few coins that have been revealed in the course of archaeological survey and eventually the low level of monetization in the area.

On the contrary, other nearby regions such as the Black Sea and parts of Syria, which were also sections of the Eastern frontier, are characterised by a larger number of coin finds. It has been suggested that there was substantial profit from eastern trade, especially in the cities of Petra and the Decapolis, on the Desert Frontier. Transportation there was relatively cheap because camels could graze on the open steppe whilst on the march and they could also carry more products. This made the trade routes through the desert in the Near East relatively attractive and it facilitated commercial activities through the open frontier with Parthia. The essence of military control then was focused on trade routes, rather than a specific territory or individual

⁵³ Mitchell, *Anatolia*, p.134.

settlements⁵⁴. All of these routes had to be protected because the prosperity of the cities of Syria and Arabia depended upon their traffic. The troops policed real cities and their trade arteries rather than forts and their supply routes, as in the west. Subsequently they resided in these cities and they allowed themselves to enjoy the luxury of urban life.

On the other hand, the city of Dura-Europos, which lay on the fringes of Syria, could be seen as an example of a trade centre as well as an important military post. Its level of monetization was probably high enough to allow tax revenues from Syria, both direct and indirect, to take the form of cash payment, according to scattered references on cash assessment of taxes in the Principate⁵⁵. The high number of silver coin finds from Dura-Europos may suggest the role of trade in the monetization of the area. Furthermore, a few coin hoards that included Parthian coins may be able to reveal to us the commercial connections with the neighbouring empire⁵⁶.

Dura seems to have had a close relationship with Palmyra since Palmyrene inscriptions in the city date from at least 33 BC. Palmyra was a legionary fortress at the principal oasis of the Syrian Desert, a fact that made it an essential link on a major route for caravan traffic from the Persian Gulf to the cities of Syria and, beyond, to the ports of the Levant⁵⁷. Roman political influence can be detected ever since the Julio-Claudian period. A road built in AD 75 linking the city to the Euphrates entailed a tightening of that control. Throughout the first two centuries of the Principate, Palmyra maintained its own forces to police the desert and provide protection for the caravans. There is no evidence for any permanent Roman garrison at least until 150s⁵⁸. The absence of a significant number of Roman troops did not undermine the monetization of the area. Polish excavations in the city during the early 60s revealed a

⁵⁴ Isaak, B., 'An open frontier', in B. Isaak (ed.), The Near East under Roman Rule: Selected Papers, Leiden: Brill 1998, p.418.

⁵⁵ Pollard, N., 'The Roman army as «total institution», in D.L. Kennedy (ed.), The Roman Army in the East, *Journal of Roman Archaeology*, Suppl. 18, Ann Arbor 1996, pp. 211-227, esp. pp.224.

⁵⁶ Bellinger, A.R., Dura Europos: The Coins, IV, New Haven: Yale University Press 1949.

⁵⁷ The role of Palmyra as an important trade centre has been suggested by Millar, F., 'Caravan cities: The Roman Near East and long-distance trade by land', in M. Austin, J. Harries and C. Smith (eds.), Modus Operandi: Essays in Honour of Geoffrey Rickman, BICS Suppl. 1998 (Institute of Classical Studies, University College London), pp. 119-137, esp. pp. 130ff. Even if there is no evidence to suggest that Palmyra participated in the legendary silver trade or the trade of luxuries coming from India, there is a strong probability, based on inscriptions, that Palmyreans were involved in transactions with Persia and neighbouring regions.

⁵⁸ Kennedy, D. and Riley, D., Rome's Desert Frontier, London: Batsford 1990, pp. 134-137.

small number of 22 Roman silver coins from the second and early third century AD⁵⁹. This number would probably be higher if excavations continued.

The same phenomenon can be attested at the cities near the Black Sea, the northern part of the Eastern frontier. One of the examples is the fort of Apsaros, which lies in Adchara, the south-western portion of the Republic of Georgia. Recent excavations and extensive survey in the immediate area revealed a *denarius* of Gordian III together with coins of Hadrian and Septimius Severus as well as a hoard of 42 more coins dated to the third century and buried within the fort. The primary role of this military establishment of the early 2nd century AD seems to have been the maintenance of a strong Roman presence at the junction of riverine routes towards the hinterland, Anatolia, Iberia and Armenia⁶⁰. Apart from its military importance there should have been also a certain economic significance since the fort facilitated trade activities through the routes that connected the above regions. The same should be true for the cities of Sebastopolis-Dioscurias and Pityus, which lay near the Colchian end of main routes northwards. The positions of the Roman forces on the Colchian coast gave them the opportunity to control trade between the Colchians and the Pontic and other Mediterranean regions. Roman forts were placed at points where an inland route or routes joined the sea. Navigable rivers and highways between the coast and the hinterland probably facilitated trade. The maintenance of order and good relations with local populations depended upon Roman assertion at the key junction points where inland routes met the Black Sea. For centuries the coast of Colchis had seen extensive trading activity and exchange between Roman forces and local people⁶¹, a fact that probably also helped the monetization of the area.

The differences of the monetization between militarised and non-militarised areas would have been examined further if we had the opportunity to analyse

⁵⁹ Michailowski, K., *Palmyra: Fouilles Polonaises 1961*, Warszawa: Panstwowe Wydawn 1963; Michailowski, K., *Palmyra: Fouilles Polonaises 1962*, Warszawa: Panstwowe Wydawn 1964; Michailowski, K., *Palmyra: Fouilles Polonaises 1963 et 1964*, Warszawa: Panstwowe Wydawn 1966; Fellman, R. and Dunan, C., *Le sanctuaire de Baalshamin a Palmyre: Kleifunde*, VI, Rome: Institut Suisse de Rome 1969.

⁶⁰ Braund, D. and Inaishvili, N., 'Excavation reports: The Lazika project', *Anatolian Studies, Research Reports* 1998, p. 3.

⁶¹ Braund, D.C., 'Coping with the Caucasus: Roman responses to local conditions in Colchis', in D.H. French and C.S. Lightfoot, *The Eastern Frontier of the Roman Empire: Proceedings of a Colloquium Held at Ankara in September 1988*, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989, pp. 31-39, esp. pp. 34 and 38-39; Braund, D., *Georgia in Antiquity: A History of Colchis and Transcaucasian Iberia 550 BC- AD 562*, Oxford: Clarendon Press 1994, pp. 173 and 181.

comparatively the structure of coin hoards from eastern and western Asia Minor. Disappointingly, although there is enough coin hoards coming from the western part, we do not have an equal number from the eastern. In fact there is only one hoard coming from this area, the Eastern Hoard [chart 1]. It seems that the Eastern Hoard contains coins also from the Antonine period as well as the Haydere Hoard while the rest contain mostly coins from the Severan and Military Anarchy periods. We should not, though, rely entirely on this evidence because we do not have other material from other hoards or excavations. We cannot be certain about the number of circulation pools that existed within the region of Asia Minor.

On the other hand, the absence of coins from excavations and hoards from the eastern frontier in comparison with the abundance of coins from western Asia Minor could indicate further economic differences between the two areas. Specifically, we know that the western part of Asia Minor was densely populated and highly urbanised. People who lived in towns could not participate in agricultural activities; therefore they had to find other ways to acquire basic foodstuff and clothing. Some of these ways probably involved manual work, banking or even trade. Various cities, especially those near ports or near crossroads, became commercial centres and hosted regional fairs that promoted monetary transactions and stimulated the monetization of the area⁶². The distribution of coin hoards found in Asia Minor shows that the majority of them are concentrated in the Western part. If we compare the number of numismatic evidence with the density of the cities we will realise that coin hoards are found mainly in the areas where most of the cities exist. The province of Syria gives us the same results. Coin hoards are concentrated either near fortresses that play also the role of trade centres (e.g. Dura Europos Hoards) or in Roman Palestine where the density of cities is higher. In this case we should note that the ports of Palestine were always particularly active and the presence of coins had probably always been important.

b) Administration

The above evidence could indicate that the army was responsible for the monetization of some areas only if its presence there facilitated trade activities. We

should take into consideration, though, also the cases of regions that were not heavily militarised. The absence of numerous soldiers in a province does not necessarily indicate that coins were not supplied there directly from the mainstream mints or that they did not circulate in this area at all. Since the coins circulating in non-militarised regions, such as Asia Minor, are numerous, we should look for other imperial mechanisms that would facilitate the distribution of coinage, such as the elaborate system of administration in the provinces. We may be certain that the cost of the salaries of civilians was another significant imperial expense that could have affected the monetization as well as the circulation of coinage in certain areas. The most conspicuous are the citizen procurators, provincial governors, legionary commanders and lesser procurators. Their salaries, which were determined by rank, ranged from 500 to 10,000 *aurei* per year during the reign of Augustus, while in mid-second century the majority received 5,000 to 7,500 *aurei*⁶³. There have been attested a minimum number of 136 procurators by the end of Commodus' reign and 174 at the death of Septimius Severus, as well as 35 governors and 14 legates during the second century⁶⁴. Although these numbers changed over the years and might not be accurately illustrated in the sources, they should give us an idea of the proportions of the upper class salaried posts. All these posts were complemented by the services of other men who established a sizeable infrastructure, consisting mostly of imperial freedmen and slaves. They received not only their lawful salaries but they also had opportunities to extract fees and bribes from the population, resulting in their buying their way into the upper ranks of provincial society⁶⁵. Although there are inscriptions illustrating the careers of some of them, the written sources would not allow us to calculate their actual number throughout the empire; therefore we are not able to reconstruct their cost to the government in detail.

c) *Handouts*

⁶² See chapter 4, for monetization of the cities and rural areas.

⁶³ Harl, Coinage in the Roman Economy, 300 BC to AD 700, Baltimore and London: John Hopkins University Press 1996, p.227.

⁶⁴ Duncan-Jones, Money and Government, pp. 37-38.

⁶⁵ MacMullen, R., 'Imperial bureaucrats in the Roman provinces', Harvard Studies in Classical Philology 68 (1964), pp. 305-316, esp. p. 309.

Specifically in Rome, liquidity among the lower classes benefited uniquely from imperial spending on *congiaria* and buildings. The *congiarium* was the emperor's civilian handout offered regularly during specific events such as accessions, marriages or the naming of heirs. They were given out every ten, five or three years or even more often. The amount of money, which they represented, (usually a few silver coins per person) increased gradually in order to reach a peak during the reign of Elagabalus. There has been an attempt to link the evidence of the coin hoards with specific handouts to the *plebs* so that their coincidence with the distribution of donatives to the soldiers would become apparent⁶⁶. The population of the provincial cities probably also benefited from special handouts when the emperor decided to travel away from Rome, e.g. Hadrian.

d) Buildings

One of the most important expenses of the central government was the construction of buildings in Rome. This expenditure was under the control of the emperor, who resided in the capital city and who considered buildings as a way to display his benevolence, to support public health and to design pleasing surroundings. Furthermore, work on buildings and public works in Rome tended to confirm the means that the emperors wished to provide a fairly steady source of paid work for the labouring poor⁶⁷. Constructions, above all, were another way to distribute coined money to the public in exchange for their professional services. The contractors that undertook the task of completing these huge projects were using both slaves and free labour force. It has been suggested that the gangs of slaves owned by contractors would not have sufficed if an enormous project was undertaken, therefore the Roman poor were 'recruited' and in this way they earned part of their living or the whole of it⁶⁸.

In antithesis to the Republican period, extensive building activity also took place in the provinces during the Imperial period at the expense of the Roman

⁶⁶ Duncan-Jones, *Money and Government*, pp. 39-41, 86-87 and 248-250.

⁶⁷ Robinson, O.F., *Ancient Rome: City Planning and Administration*, London/New York: Routledge 1992, pp. 23-25.

⁶⁸ Brunt, P.A., 'Free labour and public works at Rome', *Journal of Roman Studies* 70 (1980), pp. 81-100, esp. pp. 86, 93-94.

treasury. The foundation of colonies, imperial travelling and the chaotic situation caused by earthquakes usually drew the attention of the emperor and because of his subsequent involvement into major constructions the grateful population would bestow on him the epithets 'Restorer' or 'Saviour'. No doubt the easiest way to pay for these buildings was a warrant drawn from the *fiscus* of the province as it was filled up with taxes. Although the ultimate loser might be either the *Aerarium Saturni*, in public provinces, or the imperial *fiscus*, calls must have been made also on the *patrimonium* and on the *res privata*. The form of labour force resembled that of Rome, with the exception of the active participation of *coloni* and soldiers⁶⁹.

It has been suggested, at least for the Julio-Claudian period, that any building unless large had little impact on the economy, possibly because imperial civil servants (usually slaves) would perform routine work⁷⁰. The existing evidence cannot prove this opinion. Even if we exclude minor projects from our calculations of State expenses, we should still acknowledge an immense amount of money spent every year, which could actually match the amount spent for the army. Suetonius informs us that 30,000 men for 11 years were employed in the draining of Lake Fucino⁷¹. If four men's work is needed to produce the supply of food to the fifth, then we should suppose that at least 150,000 men were directly or indirectly involved, and this was just part of the Claudian building program. This multiplier effect in pre-industrial society puts the work of construction at the time into a colossal perspective. The ratio 1:4 -it must be emphasised- does not take the distribution of food, clothing and housing of all these workers into account⁷². On the whole, these expensive projects probably affected the mint output, as well as the circulation of money among the poorest citizens.

Massive buildings sometimes were paid for 'out of plunder'⁷³. The *forum* of Trajan, for example, was as large as the *fora* of Caesar, Augustus and Nerva put together. It was dedicated in 112 AD, after the Dacian Wars. An inscription on the

⁶⁹ MacMullen, R., 'Roman imperial building in the provinces', Harvard Studies in Classical Philology 64 (1959) pp. 207-216.

⁷⁰ Thornton, M.K. and R.L., Julio-Claudian Building Programs: A Quantitative Study in Political Management, Wauconda: Bolchazy-Carducci 1989, p. 24.

⁷¹ Suetonius, *Claudius* 20.2.

⁷² Shydsgaard, J.E., 'Public building and society', in K. de Fine Licht (ed.), Città e Architettura nella Roma Imperiale: Atti del Seminario del 27 Ottobre 1981 nel 25o anniversario dell' Accademia di Danimarca, Analecta Romana Instituti Danici, Suppl. 10, Odense: Odense University Press 1983, pp.224-225.

colonnade proclaimed *ex manubiis*, indicating that booty covered the expenses of this project. The plunder referred to is unquestionably the booty of the same Dacian Wars commemorated on Trajan's Column⁷⁴. Another impressive building built *ex manubiis* is the Colosseum that was paid for by the spoils from the Jewish War⁷⁵.

e) Personal Gifts

Another aspect of the imperial benevolence that also burdened the Roman treasury focused on the higher classes that benefited from the actions of the emperor by receiving either gifts or money-loans. For example, members of the Senate who encountered financial hardships sometimes expected the emperor to pay them a large capital payment, or even a salary for life⁷⁶. The outgoings for personal gifts could also be enormous⁷⁷. Tacitus' total estimation of 2,2 billion *sestertii* that the gifts of Nero to his favourites cost are one of the largest figures recorded⁷⁸. The emperor was also known to lend money to the citizens, probably at a low interest rate or even interest free⁷⁹. In other cases imperial gifts were just a compensation for services rendered⁸⁰. All these sums of money were probably given out to members of the propertied class of the empire, who would have been able to pay them back from their profits. In certain cases where repayment seemed to be impossible, some of the Antonine emperors decided to forgive overdue loans.

The major expenses of the State (army, administration, handouts, buildings, personal gifts) were responsible for the production of coinage as well as the supply and partly the distribution of money throughout the Roman empire. The army seemed

⁷³ Aul.Gell. 25.1.

⁷⁴ Mattern, S.P., *Rome and the Enemy: Imperial Strategy in the Principate*, Berkeley/Los Angeles/London: University of California Press 1999, pp.149-150.

⁷⁵ Alföldy, G., 'Eine Bauinschrift aus dem Colosseum', *Zeitschrift für Papyrologie und Epigraphik* 109 (1995), pp. 195-226.

⁷⁶ Millar, F., *The Emperor in the Roman World*, London: Duckworth 1977, pp. 135-9, 467-8, 491-500.

⁷⁷ Duncan-Jones, *Money and Government*, p. 43.

⁷⁸ Tacitus, Hist. 1.20.

⁷⁹ Dio 52.28.3-4; 55.12.3a; Suetonius, Augustus 41.1; Tacitus, Annales, 6.17.

⁸⁰ Harris, W.V., "Between archaic and modern: some current problems in the history of the Roman economy", in W.V. Harris (ed.), *The Inscribed Economy: Production and Distribution in the Roman Empire in the Light of *Instrumentum Domesticum**, Proceedings of a conference at The American Academy in Rome on 10-11 January 1992, *Journal of Roman Archaeology*, suppl. 6, Ann Arbor, MI 1993, pp. 11-29, esp. p.17.

to be the most important factor for the initial supply of coins in the provinces, although in some cases it did not affect significantly the monetization of certain areas or the circulation of coins. So, the reasons for the uneven distribution of precious metal coinage should be sought in the economic life of individuals that used money for their commercial or other transactions. The coin hoards and excavation finds from the eastern Mediterranean could help us study the regional circulation pools and the monetization of different areas.

II) PRIVATE EXPENDITURE

We cannot always distinguish whether the coins in hoards were part of State payments or whether citizens used them for their commercial or other enterprises. There are certain indications, though, that allow us to suggest that most of these hoards were not used for state payments. First of all, none of these hoards consists of coins of a single denomination that might have been used for payments to civilians or even to the army. Thus all of the hoards from Greece, Asia Minor, as well as Syria consist not only of varied denominations but also of coins that were minted during different reigns (apart from Western Turkey 1 and Western Turkey 2 hoards from Asia Minor). Therefore their composition allows us to suspect that they are 'savings' or 'collector's' hoards that were accumulated over a long period of time⁸¹. The treasures probably belonged to people with different social origins, since the amount of money in them varies. This money probably belonged to people who either worked for the government or were involved in private enterprises.

We may suggest, though, that most or all of these hoards belonged to wealthy citizens, who could have received public money but they also were at some extent involved in private activities. The main reason for such a suggestion is that most of the hoards were lost in areas that were connected mostly with trade and other similar undertakings. We have already seen that only a small number of coins came from the eastern part of Asia Minor, where the bulk of the army was stationed. On the contrary, most of the coin finds come from the less militarised regions of Greece, western Asia Minor and western Syria (if we exclude the odd site of Dura Europos).

All of these regions are renowned for their harbours, their international markets and their vigorous cities. Therefore, it is plausible to suggest that lively economic activity would have taken place in these areas, that the inhabitants would have made profits and that eventually the citizens would have been able to put together 'savings' hoards.

Our initial purpose is to define the economic position of the persons who were able not only to acquire such wealth of gold and silver coins, but also to immobilise them for some time by burying them. It is obvious that the upper classes probably handled most of the money in circulation, since poor inhabitants probably had only restricted opportunities to use precious metal coinage throughout their lifetime. The upper classes - senators, *equites*, *bouleutai* and the *familia Caesaris* (rich freedmen) - who benefited from the *liberalitas* of the emperor, had the opportunity to acquire considerable properties and to become involved in ruling the empire. The top of the pyramid consisted of no more than 200,000 citizens who represented only 1% of the whole population⁸², and they undoubtedly possessed the bulk of the money issued by the emperor.

The Senate, including its 600 or more members and their families, did not alter in number. We know that among other qualifications, membership of the senatorial class - the richest group in the Roman world - required wealth, estimated as a minimum of 1,000,000 *sestertii*⁸³. Among the senators, as in other classes, there were wide differences in wealth. At the top of the scale were members who numbered their fortunes in hundreds of millions and could hardly recall what they even possessed,⁸⁴ while at the bottom we find «senators of moderate means, who in a peaceful state only seek peaceful incomes»⁸⁵. According to Dio⁸⁶, *equites*, the second richest group, were poorer than the senators and the minimum property qualification has been estimated as up to 400,000 *sestertii*. Their demographic strength reached the number of 10,000-20,000 citizens, excluding their families. As for their individual properties, we should take into consideration that a *census*, who belonged to the lower strata, needed

⁸¹ See chapter 1, for categories of hoards.

⁸² Alföldi, G., *Ιστορία της ρωμαϊκής κοινωνίας*, transl. in Greek by Angelos Chaniotis, 2nd ed., Athens: Morphotico Idryma Ethikes Trapezes 1992, p. 255.

⁸³ Dio Cassius 54.17.3; 54.26.3 ff.

⁸⁴ Talbert, R.J.A., *The Senate of Imperial Rome*, Princeton: Princeton University Press 1984, pp.47-48.

⁸⁵ Tacitus, *Annales* 11.7.

⁸⁶ Dio Cassius 52.25.3.

600,000 a year to live in luxury and 100,000 to live in economy⁸⁷. All eminent *equites*, though, probably had far more than the minimum⁸⁸. Most senators and *equites* held property in Rome, in Italy and in the eastern or western provinces.

We do not find rich citizens only in Rome but also in the numerous cities of the eastern provinces. Equally prosperous but less honourable was the *ordo decurionum* of each city, which consisted of around 100 members. Of course, there have been attested exceptions, especially in the East, where the *gerousia* of the larger cities consisted of a few hundred members while in the smaller cities less than 100 could afford the expenses of the *ordo*. On the whole, there must have been 100,000-150,000 *bouleutai* throughout the empire, around 2% of the adults residing in towns. Their properties fluctuated from 20,000-100,000 *sestertii* or more per year, and they were considered to be rich only according to local standards⁸⁹. These were probably the people who owned the lost hoards in Greece, Asia Minor and Syria, although we should not exclude the possibility of other owners, such as freedmen.

The *liberti* (rich freedmen) played an important role in the local and empire-wide economies, although they had no titles. They probably possessed the necessary funds to provide financial assistance to their cities, as the freedman Poplius Decimius Eros Merulas from Asisium did; he paid 2,000 sesterces in order to become a member of the *collegium* of the rich freedmen and he offered 67,000 more for the erection of statues and the construction of roads⁹⁰.

The little information we have on the value of the individual properties of these people does not allow us to estimate their contribution to the Gross National Product, because we cannot reconstruct the exact mean number of all these properties. We may, though, form a general view on the level of monetization of the empire and the way money was used throughout the centuries by studying some well attested cases such as the properties of Cicero, an equestrian who lived during the Late Republic, and Pliny the Younger, a senator of the early second century AD. There are numerous references in Cicero's letters and speeches, concerning his personal

⁸⁷ Cicero, *Paradoxa Stoicorum* 49.

⁸⁸ Brunt, P.A., 'The *equites* in the Late Republic', in M.I. Finley (ed.), *Second International Conference of Economic History, Trade and Politics in the Ancient World*, I, Mouton 1965, repr. New York: Arno Press 1979, I, pp. 117-149, esp. p. 119.

⁸⁹ Alföldi, *Ιστορία της ρωμαϊκής κοινωνίας*, p. 225-226.

⁹⁰ ILS 7812.

finances that have been taken into account by modern researchers⁹¹. His *patrimonium*, which included at the beginning of his career farms, a villa and a house in Rome, was gradually expanding. Very soon Cicero was a man of landed property estimated at 10,000,000 sesterces, 8 villas - one of which we know cost 3,500,000 sesterces and another almost 15,000,000 sesterces - several lodges, farms, *insulae* and *tabernae* in Rome and slaves. There are accounts of him spending large amounts of money on furnishing his villas and on buying books or paper. The income needed to meet these expenses is not precisely fixed, but we may suppose that more than a million per annum was required. Some sources of this large income are clear enough, such as rental properties, gifts and legacies that by the end of his career reached the amount of 20,000,000 sesterces. Also as a governor of Cilicia he probably profited to the extent of 2,200,000 sesterces. His ability to find ready money must have been aided by the support of the equestrian class, which was able to give loans and 'corporation shares' in cases of need.

The same conditions that characterised the Late Republic in which Cicero lived and prospered also existed later during the imperial period. It seems that time did not change the role of money or its use as an essential factor in the construction of a sizeable property. We can find evidence for this in the letters of Pliny the Younger, a senator whose financial circumstances are known to us in detail⁹². We know that he owned substantial estates, a number of houses and villas and more than 500 slaves. His property at Tifernum alone was bringing in more than 400,000 sesterces per year early in the reign of Trajan⁹³. The capital value of the Tifernum estate was approximately 7,000,000 HS, therefore the income of 400,000 HS represented a return of about 6%, which was not necessarily translated into coins. If we assume a comparable figure for his Transpadane lands, and add the further property probably purchased at Tifernum for 3,000,000 HS, we reach a very rough estimate for the

⁹¹ Boren, H.C., 'The sources of Cicero's income: Some suggestions', *Classical Journal* 57 (1961), pp. 17-24; Raskolnikoff, M., 'Le richesse et les riches chez Ciceron', *Ktema* 2 (1977), pp. 357-372.

⁹² Duncan-Jones, R., *The Economy of the Roman Empire: Quantitative Studies*, 2nd ed., Cambridge: Cambridge University Press 1982, pp. 17-32; Kehoe, D., 'Allocation of risk and investment on the estates of Pliny the Younger', *Chiron* 18 (1988), pp. 15-42; Kehoe, D., 'Investment in estates by upper-class landowners in Early Imperial Italy', in H. Sancisi-Weerdenburg and H.C. Teitler (eds.), *De Agricultura. In Memoriam P.W. de Neeve (1945-1990)*, Amsterdam: Gieben 1993, pp. 214-237; Kehoe, D., 'Investimento e sicurezza del possesso nell' affitto agrario romano', in E. Lo Cascio, (ed.), *Terre, proprietà e contadini dell' impero Romano dall' affitto agrario al colonato tardoantico*, Naples: La Nuova Italia Scientifica 1997, pp. 61-73.

⁹³ Pliny, *Epistulae*, 10.8.5.

capital value of Pliny's landholdings of 17,000,000 HS, which probably secured for him an income of 1,000,000 HS per year. Despite the catalogue of adverse reports from his estates, Pliny still had sufficient funds to invest. His investments may have involved areas outside the land market, probably money lending, which possibly consisted of 1/10 of his whole income. It is also important to remember the substantial sums of money that he acquired through inheritances and legacies, whose number may have exceeded the total value of 1,450,000 HS. Even if the legacies he received were quite small, other bequests that came his way were sometimes substantial. Revenues from this source cannot be ignored when seeking an explanation of Pliny's capacity for large-scale generosity during his lifetime and in his will, since he appears to have enjoyed quite a high level of liquidity, judging by the gift of more than 1,600,000 HS to public bodies, and more than 740,000 HS to private individuals. Other public gifts, such as buildings, obviously must have cost him a fortune but our knowledge of their value is incomplete.

Enough money probably circulated around the world that would be sufficient for the liquidation of the above properties. The death of the proprietor would be followed by the dispersion of his possessions according to his will among friends, relatives, the emperor or even his native city. The benefactions towards cities, including payments for games, banquets, baths, monuments, which are specifically mentioned in testaments⁹⁴, all required cash resources. It appears that gifts in kind diminished steadily from the first to the third century AD in favour of cash donations⁹⁵. On the other hand, one of the simplest forms of legacy is the donation of cash to friends⁹⁶. The prime example appears in a second-or third century will of a veteran who set down a list of friends with individual bequests to each⁹⁷. The emperor also inherited vast sums of money: in his own will Augustus remarked that in the previous twenty years he had received some 1400 million sesterces in inheritances and legacies⁹⁸. Even if specific sums of money were not explicitly mentioned in the will, the relatives of the deceased might have wished to sell part of the whole of the

⁹⁴ Gioffredi, De R.-C., 'Legatum', in Ruggiero (ed.), Dizionario Epigrafico di Antichità Romane, IV, fasc. 1-30, Roma: Pasqualucci 1942-1958, p.500.

⁹⁵ Bossu, C., 'M' Megonius Leo from Petelia (Regio III): A private benefactor from the local aristocracy', Zeitschrift für Papyrologie und Epigraphik 45 (1982), pp. 155-165, esp. p.160.

⁹⁶ Champlin, E., Final Judgements: Duty and Emotion in Roman Wills, 200 BC - AD 250, Berkeley: University of California Press 1991, p.147.

⁹⁷ CPR 6.2.76.

property in order to pay the tax on inheritances (up to 5%) or in order to divide the property equally among the members of the family.

The need for money in cash is almost self-evident because every rich person who wanted to keep a respectable image within the society had to maintain and exhibit a certain affluent standard both in his private and public life. Apart from the minimum amount of money required for their acceptance as members of the senatorial or equestrian class, they also had other financial obligations. Most candidates to the senatorial career would undertake election expenses at one stage or another. Although the emperor would regularly support a proportion of the candidates for lesser magistracies, saving them from the trouble and expense of canvassing, for the remaining places there was an open competition which involved time, effort and expenditure of money in the form of bribes or benefactions (entertainment, presents etc.). We have no further knowledge of the expenses, which a candidate for office would need to pay in practice, even if law strictly forbade them. Once he had entered the senate a member would need to maintain a house in Rome, which demanded additional expenses, such as architectural developments, high rents and a huge number of slaves. Seneca himself says: «I lack extravagant tastes but city life itself demands high expenditure»⁹⁹. In the magistracy he held, a senator would be required to make a substantial contribution for the cost of games and other purposes. First of all, *quaestores* had to contribute towards paving roads, *aediles* had to contribute in games -at least in the beginning of the imperial period- while praetors as well as consuls and priests were subsequently responsible for spending upon fine shows, which for the most part were a mixture of circus races and theatrical performances. Two of Martial's epigrams¹⁰⁰ can perhaps give some clue as to the amount a praetor might contribute from his own pocket. At some point he speaks of a praetor spending over 100.000 HS on the races, at another of 100.000 HS being expected as a minimum contribution towards the *Ludi Megalenses*, as well as 20.000 HS for the *Ludi Plebeii*. Emperors who increased the number of games and races hardly earned senatorial support mainly because these expenses sometimes could not be met and thus the senators had to resign¹⁰¹. From the above it is clear that anyone who embarked upon a

⁹⁸ Suetonius, Augustus 101.3.

⁹⁹ Seneca, Ep. Mor., 50.3.

¹⁰⁰ Martial, 4.67; 10.41.

¹⁰¹ Dio Cassius, 60.27.2.

senatorial career would be likely to find his initial costs remarkably high. Only a minority with luck and ability were destined to gain appointments that would handsomely repay the necessary expenditure, and even then a long interval would probably occur before they enjoyed their rewards¹⁰².

Apart from their public image expressed in the political arena, powerful citizens also had a private image, which was visible inside and outside their house. The maintenance of houses and villas, gourmandising, funerals and other extravagances were part of the image of anyone who claimed to be substantially affluent. A «wasteful squandering of wealth»¹⁰³ can be verified in the story of Petronius about Trimalchio, an imaginary freedman of the first century AD¹⁰⁴.

Expenses for the maintenance of a household could take either the form of coins or of goods. In this case, even if Trimalchio spent vast amounts of wealth in order to create a luxurious dinner for his distinguished or not guests, in fact he did not spend an equally immense amount of money. In fact, he boasted that he did not need to buy anything because everything used to be home-grown: wool, citrus, pepper. Once, when the wool he got was not good enough, he brought some rams from Tarentum. Another time he ordered some bees from Athens in order to get home-grown Attic honey¹⁰⁵. The claim that his extravagant lifestyle followed the guidelines of self-sufficiency could not be anything more than a well-structured hyperbole¹⁰⁶. The fact that rich estate owners did transport their own products for long distances overseas is not in doubt¹⁰⁷, although senatorial ideology supported views of fondness for self-sufficiency on their estates, which were located throughout the empire. Horace speaks of those who buy estates near Rome, sometimes for HS 30.000 or more, so that they can have their own grapes, chickens, eggs, wine, vegetables and firewood¹⁰⁸. Pliny, on the other hand, notes with pleasure how many of his requirements could be satisfied on his own villa¹⁰⁹.

¹⁰² Talbert, *The Senate*, pp.54-66.

¹⁰³ Davis, W.S., *The Influence of Wealth in Imperial Rome*, New York: The Macmillan Company 1910, pp. 152-153.

¹⁰⁴ Petronius, *Satyricon*.

¹⁰⁵ Petronius, *Satyricon*, 38. 1-4.

¹⁰⁶ D'Arms, J.H., *Commerce and Social Standing in Ancient Rome*, Cambridge, Mass.: Harvard University Press 1981, p.118.

¹⁰⁷ Whittaker, C.R., 'Trade and the aristocracy in the Roman empire', *Opus, International Journal for Social and Economic History of Antiquity*, 4 (1988), pp. 49-75, esp. p.58.

¹⁰⁸ Horace, *Epist.* 2.2.160-166.

¹⁰⁹ Pliny, *Epist.* 2.17.25-27.

The same idea is found in D'Arms book on *Commerce and Social Standing in Ancient Rome*, where he tries to prove that the villas near the Bay of Naples were designed in a way that would allow them to achieve self-sufficiency (*autarkeia*). Although they were non-productive they relied on the hinterland, which offered excellent agricultural possibilities. Therefore the revenues derived from agricultural production met the expenses for the maintenance of a luxury estate¹¹⁰. The villas as indicators of wealth cannot specify where this wealth came from; the house and its appointments could represent the investment of capital derived from quite different sources. Being fairly modest establishments, though, it would be reasonable to assume that the refinements are the result of an agricultural surplus. This in turn implies the existence of flourishing markets and a fairly numerous non-agricultural population requiring food¹¹¹.

Apart from the archaeological evidence there are also literary sources -which ought to be considered carefully. These support the view that self-sufficiency was not always the primary purpose of financial decisions. It was not always practical or profitable for the citizens of the empire to lead their lives according to their ideological convictions. Varro in his *Agricultura*, while giving advice to landowners for the maximisation of their profit, says that «if there are towns or villages nearby, or even just well-stocked fields and estates belonging to wealthy owners, so that you will be able to buy cheaply from them anything that you need for your own farm, and can sell them your surplus products...then your farm will be more profitable than if these things have to be brought from a long distance. Often it will be more economical than if you are able to provide these goods yourself by having them produced on your own estate»¹¹². Transportation costs seem to have been very expensive even prohibitive, although in certain cases they could not be avoided, especially when trade dealt with luxury products from India or Arabia, e.g. spices. Although self-sufficiency was the goal of the small producer and an important element of the traditional value system of

¹¹⁰ D'Arms, *Commerce and Social Standing*, p. 83 .

¹¹¹ Percival, J., 'The villa in Italy and the provinces', in J. Wachter (ed.), in *The Roman World*, London/Boston: Routledge 1987, pp. 527-552, esp. p. 538.

See also chapter 4, for consumer-city.

¹¹² Varro, *Agricultura*, 1.16.3.

the aristocratic elite, it was most of the times an unattainable goal. Small and large landowners alike did buy as well as sell their products¹¹³.

In conclusion, the rich inhabitants of the Roman empire, although they represented only a small percentage comparing to the rest of the population, possessed large amounts of wealth that was accumulated over the years. This wealth was spent in public or private occasions for the benefit of its owner, his family and his friends. His economic situation allowed him to translate part of this wealth into precious metal coins that would have been kept as hoards, not in banks but probably in his house. Although we cannot know the exact number of precious metal coins in circulation, we suspect that the coinage was able to cover such expenses, as household needs, benefactions and other public expenditure and the satisfaction of his inheritors, in case of death. Especially, the liquidation of a property probably demanded a large amount of money at the disposal of the parties that were involved in the transaction. We should not underestimate the importance of coins as a commercial medium in the above instances, even though we cannot assess exactly the extent of the use of coinage among the higher classes.

PROFITABLE ENTERPRISES

Although the upper classes seemed preoccupied with the maintenance of their households and their public image, in fact they were probably also interested in various profitable enterprises that would allow them the increase of their wealth. Since self-sufficiency cannot easily be achieved in complex societies, such as the Roman, then we should locate the interest of the elite in the distribution and marketing not only of the produce of their own estates but also of imported products. After meeting the obligation of supplying their own households, they probably disposed of the remaining surpluses in the market¹¹⁴. This act would enable them to make a profit. Maximisation of profits, although a notion initially connected to Classical Economic theories, in fact should have been important also to the Romans. That is why they became involved in various enterprises, which would allow them to amass

¹¹³ Garnsey, P., *Food and Society in Classical Antiquity*, Cambridge: Cambridge University Press 1999, pp. 22-24. An attempt by the same author to estimate the size of the agricultural surplus in antiquity does not lead to any definite results (ibid. pp. 24-28).

¹¹⁴ See Whittaker, 'Trade and Aristocracy', p.62, for the existence of the Italian market.

an enormous amount of wealth. Ptolemaios¹¹⁵ writes about activities, which make somebody rich (*polyktemon*): building (*themelia*), agriculture (*georgia*) and shipowning plus trading (*naukleria*). Plutarch¹¹⁶, in a very important passage, states that people turn their first rate slaves (*spoudaioi*) into ‘*georgoi, naukleroi, emporoi, oikonomoi and daneistai*’. Two centuries later Basilius¹¹⁷ mentions five sources of wealth: corn (*sitos*), wine (*oinos*), wool (*eria*), trade (*emporio*) and banking (*daneisma*). The role of shipper (*naukteros*) and merchant (*emporos*) could have been filled by one man. Later on, we will try to explore these enterprises that not only brought profit but also involved the usage of coins in the process of the transactions. Therefore agricultural activities are not studied in detail, although they are indirectly connected with trade, rents and banking. If we manage to estimate the extent of the following economic activities, we may be able to assess their significance in relevance to the distribution of coinage and the eventual monetization of the Roman empire.

a) Trade

The economic nature and profitability of trade in antiquity prompt us to suggest that commercial activities seemed to facilitate the accumulation of an increasingly important volume of wealth in coined money. The sale, transportation and marketing of goods could be carried out in a variety of ways with a range of people involved. We cannot deny that a considerable number of merchants belonged to the middle or even lower class people, especially those who bought and sold their own products. There were also the large-scale wholesalers who financed trade activities, who could have also been directly involved in the transportation and sale of the products, while there were also people with varied financial capacity involved in financing and organising the shipping of goods. At each stage the person involved may very well have been dealing not with the principal but with a representative, a slave or freedman or a member of the elite acting as an *institor*¹¹⁸. Freedmen operated with upper class money, while independent merchants or shipmen may have been

¹¹⁵ Ptolemaios, Tetrabylos IV, 2.

¹¹⁶ (Pseudo-) Plutarch, De liberis educandis 7.

¹¹⁷ Quoted by Ruggini, L.G., Economia e Società nell’Italia Annonaria: Rapporti fra agricoltura e commercio dal IV al VI s.d. C., Milan: Giuffrè 1961, s.202, note 631.

indebted to members of the urban elite.¹¹⁹ By means of these institutions the rich landowner could reap the rewards of trade indirectly by creaming off the profits that he could acquire from the use of his or her representatives at each of the key stages in trade. In this model we should envisage a relatively closed market in which profits largely returned directly or indirectly to the wealthy landowner¹²⁰. These landowners could have been well-to-do and prestigious local citizens of the eastern part of the empire who could afford to advance money to their city for buying and transporting huge amounts of e.g. grain from Egypt -by permission of the emperor. This practice, though, was not common. Even in a rich city such as Ephesus local merchants did not have the economic capacity for such transactions, which could involve an import of e.g. 60,000 *modii* of grain. In fact, no parallel in the Greek East exists in comparison to well-to-do Western grain merchants like the Aufidii, who owned estates in Africa, occupied curial positions both in Ostia and African cities, and were corn-merchants in the port of Ostia¹²¹. Unfortunately, it will be impossible to estimate the number of people, apart from the extremely rich, involved in these transactions, although we could guess that all producers, as well as inhabitants of the cities, were involved in minor commercial activities.

Since we cannot estimate the number of actual traders, the only way to assess the importance of trade is by investigating the circulation in the market of products that were used in every day life. So far, we know that luxury products were moving from the empire to areas beyond the frontiers and vice versa. Spices, expensive clothing and other luxury goods were the main interest of wealthy merchants. There also existed a wider movement of staple commodities such as grain from wealthy provinces of the empire towards others or towards the cities. Furthermore, archaeological evidence has lately indicated that also inexpensive products, possibly to be found in local markets, were able to move for long distances. For example, it is usually assumed that only decorated or fine pottery was exported; but in some

¹¹⁸ For more information on agents see: Kirschenbaum, A., Sons, Slaves and Freedmen in Roman Commerce, Jerusalem/ Washington D.C.: Magnes Press/ Catholic University of America Press 1987.

¹¹⁹ Paterson, J., 'Trade and traders in the Roman world: Scale, structure, and organisation', in H. Parkins and C. Smith, Trade, Traders and the Ancient City, London/New York: Routledge 1998, pp. 148-167, esp. pp. 160-1; Pleket, H.W., 'Urban elites and business in the Greek part of the Roman empire', in P. Garnsey, K. Hopkins and C.R. Whittaker (eds.), Trade in the Ancient Economy, London: Hogarth Press 1983, pp. 131-144, esp. p.140.

¹²⁰ Paterson, 'Trade and traders', p.162.

¹²¹ Pleket, H.W., 'Urban elites and business', p. 143.

shipwrecks the main cargo, apart from amphorae, was coarse ware, such as in the shipwreck Riou 1¹²². A modern suggestion that coarse pottery was used in order to balance the weight of the ship¹²³ does not change the fact that eventually the merchant would undertake the task of selling these products in distant markets in return for money or other goods. Even if this type of trade was not as profitable as the trade of luxuries, it still played an important role in the distribution of coins and commodities. The evidence of lamps, a 'humble' type of pottery, which were traded abroad when they were not produced locally, is overwhelming. Although regional limitations in their long-distance movements have been attested, the simple fact that they were moving within a wide geographical radius shows us that their trade was a widespread activity¹²⁴. Another kind of industry that brought profits when combined with trading activities, while it was not associated with luxurious products, was the textile industry in the eastern provinces¹²⁵. It is obvious that we can estimate the extent of these activities only if we excavate more sites, especially in the eastern Roman Empire¹²⁶. For now we can only assume that long distance trade of basic commodities was common and transportation costs were not necessarily excessive since the profits from such trade could have been substantial.

The form of these profits could have been translated either in money or in other commodities. We can guess that a professional merchant would travel from one port to another exchanging his cargo of A product with a cargo of B product if this was more profitable sold in another area, a practice continuing even during the 20th century. The absence of coins in shipwrecks could also suggest that such activities were probably quite common. Ancient ships most often carried small sums of coin not intended for trade but more likely belonging to or intended to supply the needs of

¹²² Pucci, G., 'Pottery and trade in the Roman period', in P. Garnsey, K. Hopkins and C.R. Whittaker (eds.), *Trade in the Ancient Economy*, London: Hogarth Press 1983, pp. 105-117, esp. p.111.

¹²³ Gill, D.W.J., 'Pots and trade spacefillers or objets d' art?', *Journal of Hellenic Studies*, 111 (1991), pp. 29-47; A shorter version in Osborne, R., 'Pots, trade and the archaic economy', *Antiquity* 70 (1996), pp. 31-44, esp. p. 39.

¹²⁴ Duncan-Jones, R., *Structure and Scale in the Roman Economy*, Cambridge: Cambridge University Press 1990, p.58.

¹²⁵ Pleket, von H.W., 'Urban elites and the economy in the Greek cities of the Roman empire', *Münsterische Beiträge zur antiken Handelsgeschichte*, III 1, (1984), pp. 24ff.; The importance of textile trade is also established in Pleket, H.W., 'Models and inscriptions: exports of textiles in the Roman empire', *Epigraphica Anatolica* 30 (1998), pp. 117-128.

¹²⁶ See chapter 4, for retail trade.

the crew¹²⁷. On the other hand, transportation costs of commerce across land could have affected this practice. Merchants probably preferred to carry the weight of a few precious metal coins instead of another huge cargo whose transportation would probably cost them a fortune.

Patterns of coins and trade

The circulation of coins in some cases reveals trade patterns in certain areas and eventually allows us to trace the movement of merchants in the Mediterranean. The attempt to compare trade patterns with coin patterns in the eastern Mediterranean has never been attempted before and unfortunately, even in this chapter I had to rely only on scanty evidence. In the first instance it would be sensible to analyse in histograms the structure of hoards, excavation finds and stray finds that were examined also in the beginning of the chapter. Then I intend to demonstrate only the general patterns that emerge between different regions and indicate the movement of coinage within specific circulation pools. These patterns could indicate the existence of trade routes that were repeatedly used by merchants, when they were travelling from one port to another or from one city to another.

It is not a coincidence that most of our coins come from highly urbanised areas or ports. So far, we have seen that most of the coin hoards come from regions in western Asia Minor, Syria and Greece, which are in contact with the Mediterranean Sea. The geographical situation (sea-oriented cities) probably allowed the inhabitants to get involved in trading activities for which purpose they created sizeable harbours. Greece is known for its ports in the mainland (e.g. Corinth, Athens) and the islands (e.g. Rhodes). Palestine and Phoenicia are characterised by a string of ports along the coast of the Levant. Asia Minor demonstrates the same structure with ports in its western coast (Aegean) as well as the northern coast (Black Sea). All of these harbours are in contact with each other as well as with other cities away from the sea. This contact was achieved through sophisticated roads that cross the countryside

¹²⁷ Beckman, M., 'Ancient coins from shipwrecks', *The Anvil*, vol. 8, no. 2 (June 1998), pp. 19-21. The results of this article were based on the evidence presented by Parker, A.J., *Ancient Shipwrecks of the Mediterranean and the Roman Provinces*, Oxford: Tempus Reparatum 1992.

especially in Greece and Asia Minor¹²⁸. Although initially roads may have been constructed for military purposes, traders were using them frequently.

So far, we have seen that different circulation pools were created in the provinces around the eastern Mediterranean. The region of Syria stands alone as a circulation pool since tetradrachms were used in Syrian cities throughout the Roman period almost exclusively¹²⁹. It seems that merchants either exchanged their currency when they entered Syria or they traded solely in that area without crossing the borders.

Coin finds from Asia Minor demonstrate that not only there was no numismatic connection with Syria but also that there existed more than one circulation pool. The provinces of Phrygia, Pisidia and Pamphylia, as is demonstrated by stray finds from the local museums of Afyon, Yalvaç and Fethiye respectively [chart 12], indicate that they belonged to the same economic zone. There are no similarities with the region of Pontus, as shown by coins from the museum of Sinop, or with the eastern frontier, as shown from the structure of the Eastern Hoard [chart 13]. The system of roads in Central and Southern Turkey was probably the main factor that facilitated the connection of these provinces. Traders would travel on these roads and they would promote inter-regional trade within these areas.

The southern Aegean Sea constitutes another distinctive circulation pool. The harbours of Patras, Corinth, Athens and Ephesus in comparison with the island of Rhodes indicate distinct similarities [chart 8]. This parallel can be explained if we take into consideration the nature of the above sites and the activities that characterised them. All of them were important ports and they were directly connected with trading activities. The fact that they belong to the same circulation pool allows us to suggest that they were also probably on the same route that the majority of merchant ships followed. Traders maybe confined themselves within this region either for economic or for other reasons.

On the other hand, Northern Greece and Asia Minor belong to another circulation pool. The island of Corfu, the ports of Thessaly, the cities of Thrace and the harbours of Black Sea (such as Sinop) probably welcomed every year a substantial number of traders [chart 9]. These traders either travelled on ships or they used

¹²⁸ Egnatia Odos in Greece played an important role in the movement of goods from the Ionian Sea to the Bosphorus. For roads in Asia Minor see chapter 4.

¹²⁹ See chapter 3, for Syrian tetradrachms.

Egnatia Road that commenced in Action and continued as far as Thrace. The *Monumentum Ephesinum*¹³⁰ shows the economic importance of the Bosphorus that connected the Aegean with the Black Sea. It is probable that trading activities in the area were significantly high and that the Roman State acknowledging the situation imposed custom dues up to 20% to anyone who would cross the Bosphorus. The government in an attempt to gain more money from taxes ruled that the traders should pay every time they travelled from one side to the other even if they carried the same cargo.

Coin hoards found in India also suggest that extensive trade abroad was conducted with the help of gold and silver money or bullion¹³¹. Merchants involved in international trade as well as sea-trade would need to carry money on them for two additional reasons: a) in order to pay for their lodgings in *tabernae*, when they travelled and b) in order to pay for *portoria*, when they crossed the borders of the provinces or the frontiers of the empire. The minimum amount for custom dues was 2½ % and the maximum 25% of the price of the goods that were carried¹³². Coins found beyond the Roman frontiers belong to a different economic zone and probably also different circulation pools that will not be studied here.

b) Estate holding

¹³⁰ Text, commentary and translation in Engelmann, H. –Knibbe, D., 'Das Zollgesetz der Provinz Asia. Eine neue Inschrift aus Ephesos', *Epigraphica Anatolica* 14 (1989); Text and commentary in Pleket, H.W., *Supplementum Epigraphicum Graecum* 39, 1989 (1992) no. 1180, 367-387. Discussion on the text can be found in the following articles: Nicolet, C., 'Le *Monumentum Ephesinum* et les dimes d'Asie', *Bulletin de Correspondance Hellenique* 115 (1991), pp. 465-480; Nicolet, C., 'Le *Monumentum Ephesinum* et la delimitation du *portorium* d'Asie', *MEFRA* 105 (1993), pp. 929-1059; Solin, H., 'Zum Zollgesetz der Provinz Asia', *Zeitschrift für Papyrologie und Epigraphik* 86 (1991), p. 183; Wankel, H., 'Zum Zollgesetz der Provinz Asia §1', *Zeitschrift für Papyrologie und Epigraphik* 85 (1991), p. 40; Heil, M., 'Einige Bemerkungen zum Zollgesetz aus Ephesos', *Epigraphica Anatolica* 17 (1991), pp. 9-18; Salomies, O., 'Zu einigen Stellen im Zollgesetz der Provinz Asia', *Zeitschrift für Papyrologie und Epigraphik* 86 (1991), pp. 184-186; Carreli, S., 'Alcune osservazioni sul portorium Asiae', in B. Virgilio (ed.), *Studi ellenistici VIII*, Pisa 1996, pp. 175-189; Lewis, N., 'Three textual notes on the new *Monumentum Ephesinum*', *Zeitschrift für Papyrologie und Epigraphik* 107 (1995), p. 248; McGing, B.C., 'The Ephesian customs law and the Third Mithridatic War', *Zeitschrift für Papyrologie und Epigraphik* 109 (1995) pp. 283-288; Dreher, M., 'Die *lex portorii Asiae* und der Zollbezirk Asia', *Epigraphica Anatolica* 26 (1996) pp. 111-127; Merola, G., 'Il *Monumentum Ephesinum* e l'organizzazione territoriale delle regioni asiatiche', *MEFRA* 108 (1996) pp. 263-297.

¹³¹ See chapter 1, for zones of circulation of coinage in the *barbaricum*.

¹³² Meijer, F. and van Nijf, O., *Trade, Transport and Society in the Ancient World: A Sourcebook*, London/New York: Routledge 1992, p. 78 ff.

The most widespread economic activity among the higher classes was real estate holding, mainly because it brought prestige and social acceptance to the individuals. Land would not have been useful unless it was cultivated regularly and effectively by its holders. Agricultural production, first of all, was important for the maintenance of the household, which included the owner, his family, his slaves and his tenants. As we have already seen, rich proprietors did not hesitate to bring from distant estates the products that they needed for their comfortable residence in another province. Agriculture was also overwhelmingly important for another reason. The surplus of the annual production was sent to local or international markets in order to cover deficiencies of the food market in certain areas. This could be suggested by the specialisation of crops in some regions, as advised by some ancient authors (although none of them advocates complete monoculture) and by the existence of fixed prices in the market. For example, Varro advises owners to keep back crops, which do not decay rapidly (grain, wine and honey), for sale at a time when the price is high¹³³. Duncan-Jones estimates the magnitude of the profits from the sale of wine to be up to the amount of 7-10 %¹³⁴. So, we could assume that agricultural activity and the decisions taken for their efficiency were firmly connected with the rules that regulate the market and only in this combination could agriculture produce profit.

Another profitable activity was the rental of buildings or land in return for goods or money. Different opinions about the form of payment (coins or goods) have been expressed repeatedly. According to M.I. Finley, the tenant could agree to pay the rent in a fixed number of products at fixed prices. We have no way, though, to estimate the typical ratio of rent to acreage or purchase-price or anything else¹³⁵. In this case he refers only to rents on land and not on buildings because land could produce food or other products while buildings remained unproductive and were used only for residence. P. Garnsey estimated the rents on buildings in his article on urban

¹³³ Varro R.R., 1.69; 1.22.4; 3.16.11.

¹³⁴ Duncan-Jones, The Economy of the Roman Empire, p.59.

¹³⁵ Finley, M.I., 'Private farm tenancy in Italy before Diocletian', in M.I. Finley (ed.), Studies in Roman Property, Cambridge: Cambridge University Press 1976, pp. 103-121, esp. pp.106-107; Rents were probably paid in kind during the fourth century according to Hopkins, K. "Models, ships and staples", in P. Garnsey and C. R. Whittaker (eds.), Trade and Famine in Classical Antiquity, Cambridge: The Cambridge Philological Society 1983, pp. 84-109, esp. p. 87. The economic conditions of the fourth century cannot necessarily be applied to the historical reality of the third century AD.

property investment. Although he never explicitly says that they were paid in cash, he acknowledges their importance to the annual income of the owners¹³⁶.

c) Banking

Another aspect of the economy that was directly linked to the cash resources of the State, as well as to trade and similar enterprises, was banking activities. Its connection to the market can be also suggested by the geographical situation of the bank itself. It seems that, bankers always reserved a table in the market for their transactions. Banking is an economic activity that was developed as a result of the introduction of coinage. Ancient bankers were mainly involved in the exchange of money¹³⁷. They are not known to have transferred money from one place to another without the actual movement of coinage, although the *publicani* must have used a primitive system of credits and debits to transfer tax revenues back to Rome. Private contacts possibly facilitated the same service at least by providing funds to rich friends in one area against receipts to another¹³⁸. There was also a system of credit and debit that facilitated transactions in large estates¹³⁹.

Bankers or other rich persons with extensive money supplies probably had the ability to lend money to people in need. Usury was accepted as an important characteristic of the Roman society and Roman law had taken measures for its legal conduct. Theoretically, the role of the emperors was to restrict the activities of 'loan-sharks' and to establish legal interest rates. There is a reference in *Scriptores Historia Augusta* to Alexander Severus who preferred to provide poor members of the society with loans at interest of four per cent (or even without interest) for the purchase of land¹⁴⁰. In another instance he forced money-lenders to reduce the interest they demanded for loans at the rate of four per cent, while the senators who lent money could only accept gifts or an interest at six per cent¹⁴¹. Pliny also mentions loans from the municipality that are at a 9% interest rate and he proposes that city councillors

¹³⁶ Garnsey, P., 'Urban property investment', in M.I. Finley (ed.), *Studies in Roman Property*, Cambridge: Cambridge University Press 1976, pp.123-132.

¹³⁷ Bogaert, R., *Les origines antiques de la banque de dépôt: une mise au point accompagnée d' une esquisse des opérations de banque en Mésopotamie*, Leiden: Sijthoff 1966, pp.135-144.

¹³⁸ Howgego, *Ancient History from Coins*, London/ New York: Routledge 1995 p.90.

¹³⁹ See chapter 5.

¹⁴⁰ SHA, Sev. Alexander, 21. 1-2.

should be compelled to borrow at a lower rate¹⁴². On the whole, we can guess that the practice of loans was widespread especially when coinage was scarce, a phenomenon that we sometimes encounter in antiquity¹⁴³.

It seems that all of the above economic activities, such as trade, estate holding and banking, brought profits translated mostly in precious metal coins accumulated by the rich inhabitants of the empire. Even if some of the ways for the accumulation of wealth were not considered appropriate according to the ideological framework set by contemporary society, they were practiced widely in antiquity. These same activities also represent important factors in the promotion of the distribution of coinage to distant provinces. Movements of coins related probably to long distance trade could create distinct circulation pools in the Eastern Mediterranean within which people and goods travelled continuously.

NON-INTEGRATED MONETARY ECONOMY

Although profitable enterprises based on money existed during the Roman period, they were not developed enough to prompt the integration of the economy. The empire could be pictured, as a mosaic comprised of different stones that represent localised economies. It is evident from movement of coins throughout the empire that there is a range of different circulation pools. The reasons for the uneven distribution of coinage in the provinces are probably related to the level the monetization of a province, the strength of the traditional coinages, the distance of the region from Rome, where the central mint existed and the different needs of the province for the conduct of trade or for the supply of the army. The circulation pools of different geographical areas have individual characteristics that do not necessarily overlap with the characteristics of any other area in the empire. This phenomenon is enough to force us to reconsider our ideas on the economic integration of the empire

¹⁴¹ SHA, Sev. Alexander, 26. 2-4.

¹⁴² Pliny, Epistulae 10.54.

¹⁴³ An incident of dearth of coinage in the market during the Roman Republic is described in Verboven, K., 'Caritas Nummorum. Deflation in the Late Roman Republic?', *Münstersche Beiträge zur antiken Handelsgeschichte* 16 (1997), pp. 40-67.

and to encourage us to find new evidence that proves or disproves modern theories on integration.

First of all, Keith Hopkins supported the idea of the integration of the empire in his article on 'Taxes and Trade in the Roman Empire' published in 1980. He divided the provinces into three economic zones. To the first zone belonged the frontier provinces where the army was stationed, to the second belonged the rich tax-exporting provinces such as Asia Minor, and to the third Italy and the city of Rome. The relationship between them was based on the possibility that rich provinces were responsible mainly for the payment of taxes that were consumed by the army in the frontiers and by the central administration in Italy. In turn, these taxes stimulated inter-regional trade, which also played an important role in the economic integration especially after the second century AD when trade seemed to flourish. An increase in the volume of inter-regional trade caused another increase in the volume of money produced by the State for the needs of the inhabitants. On the whole, the flow of taxes, trade and rents paid in coin contributed to the even distribution of coinage and the eventual integration of the economy throughout the empire¹⁴⁴.

R. Duncan-Jones tried to prove the opposite, that coins had the tendency to remain in the local circulation area within which they were produced. In an article published in 1989¹⁴⁵ he revealed his methods for the study of the integration of the Late Roman Coinage, which was produced locally in contrast to Imperial coinage that was almost entirely produced in the mint of Rome. While he compared types of coins that come from hoards found in different parts of the Empire he realised that a concentration of certain types in certain areas is apparent. The results of his research are refined in his book on Money and Government in the Roman Empire¹⁴⁶, where he concludes that the existence of regional differences suggests that the process of recycling coin through taxes or trade was provincial rather than national. The coins that were sent to distant provinces for the needs of the army stayed in those provinces and inter-regional trade was not enough to move them out. Finally, «the monetary unification of the empire, so striking in terms of the uniform denominations found

¹⁴⁴ Hopkins, K., 'Taxes and trade in the Roman empire', Journal of Roman Studies 70 (1980), pp.100-125. A revised version of this model has been published later in Hopkins, K., 'Rome, taxes, rents and trade', Kodai: Journal of Ancient History 6/7 (1995-1996), pp. 41-75.

¹⁴⁵ Duncan-Jones, R.P., 'Mobility and immobility of coin in the Roman empire', Annali: Istituto Italiano di Numismatica 36 (1989), pp.121-137.

throughout an enormous land-area, was always more a matter of form than of substance».

Chris Howgego¹⁴⁷ aimed to bridge the differences between the above theories. He correctly noticed that, although the study of the homogeneity of coinage could suggest the integration of monetary economy, it couldn't suggest the integration of other sectors of the economy. During the Roman Imperial period products other than coins, such as pottery, foodstuffs e.t.c., also moved throughout the empire. Archaeological evidence indicates their voyage to distant provinces away from the area of their production. As for the circulation and integration of coinage, C. Howgego describes the mechanisms of the supply and distribution of coinage through army payments, taxes, rents and trade, but he subsequently states that despite movements of coin from east to west and west to east, coin populations never became completely homogeneous. In fact, heterogeneity of coinage seems to have increased regularly during the third century AD. This last view brings him partly in accordance with the views of Duncan-Jones on the monetary integration of the empire. Although Howgego's views are widely accepted, he fails to estimate the amount of goods that actually moved from one place to another, while he does not explain how extensive that phenomenon was. Coinage still remains our best indication for the integration of the economy even if it is only a small part of it.

When we compare hoards from the northwest with those from the eastern Roman empire we can study further the heterogeneity or homogeneity of different circulation pools. The only eastern coins that reached the west in substantial quantities were those struck under Septimius Severus, Gordian III, Trebonianus Gallus, Valerian and Gallienus. Apart from the joint reign of Valerian-Gallienus, during the rest of the first half of the third century all coinage was produced mostly in the mints of Rome and Antioch but these coins are difficult to attribute to one mint or the other and we could make serious mistakes. Taking into account the nature of the evidence, we may be able to estimate approximately the extent of the circulation of coinage in areas away from its production. In British hoards of the period AD 248-261, *antoniniani* of Gordian from Antioch represent 1-6% of all *antoniniani* of

¹⁴⁶ Duncan-Jones, Money and Government, pp.172-179.

¹⁴⁷ Howgego, C., 'Coin circulation and the integration of the Roman economy', Journal of Roman Archaeology 7 (1994), pp.5-21.

Gordian, but in hoards buried AD 263-274 they account for 6-14 %. Thus there does appear to be a rising trend of eastern coins of Gordian in Britain, because of the fact that the silver content of the coins struck in Rome from AD 240 onwards was well below the silver content of those produced at Antioch. Severus' eastern *denarii*, which circulated up to almost 70 years after their issue, reach c. 50% in British hoards by AD 263, but they never attain the 80% found in the east. Furthermore, among coins of Gordian III eastern material represents 0-14% in the northwest, 10-16% in Turkey and 32-34% in Syria. Eastern coins of the reigns of Gallus- Gallienus decrease in the northwest and they reach the proportion of 0-9% in contrast with the east where they reach the proportion of 90-100%. On the other hand, circulation of western coinage in Turkey was quite limited. During the reign of Septimius Severus, 82% of the coinage in Dura Europos hoards came from the mint of Antioch. Later, according to the results that we have from the statistical analysis of S.E Turkey, Smyrna and Haydere hoards, which are dated to the reign of Gordian III, only 10-16% of the coins came from Antioch, while the rest came from Rome. During the reigns of Trebonianus Gallus until Gallienus, the pattern changed again and we find most of the coins (95-100%) coming from eastern mints¹⁴⁸.

We have already seen that the Eastern Roman empire should be divided into numerous circulation pools –Greece, Asia Minor and Syria- as the structure of our hoards indicate. Moreover the differences in the structure of coin hoards allow us to adopt the view that there was no numismatic integration of the Roman empire. This result is analogous to the result coming from the study of the different coin types that sometimes were more common in one province than another. The factors that affected the individual areas and transformed their economy should be sought in both the imperial policy and individual enterprises.

If we study the monetary economy and the lack of integration in the empire from a wider perspective we will be able to explain the way it functioned. First of all, we should distinguish the monetary integration from the economic one. Keith Hopkins was not entirely wrong when he tried to explain the economic relations

¹⁴⁸ At least these are the results based on lists that have been presented in the Thirteenth Oxford Symposium on coinage. Howgego, C., 'The circulation of silver coins, models of the Roman economy, and crisis in the third century AD: Some numismatic evidence', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World, The thirteenth Oxford Symposium on Coinage and Monetary History 25.- 27.3.1993, Berlin: Mann 1996, pp.219-236.

between different types of provinces. In fact, his model can still be applied if we take into consideration that part of the trade, taxes, payments etc. took place in the form of goods instead of money; therefore we cannot trace them among the numismatic finds. If we accept that the Roman empire was a whole entity, whose individual regions interacted with each other, then we may suppose that goods circulated throughout the empire in order to cover the needs of several provinces.

The monetary integration, though, was never achieved because no political or other factor was powerful enough to impose common numismatic policies throughout the empire. The role of the army that was considered to be the main expense of the State and that was also one of the factors for the supply and distribution of coinage in the local markets was probably quite limited¹⁴⁹. The troops could affect the monetary development of an area only if other factors, such as urbanisation and trade, already existed. Since the army could not always affect the creation of different circulation pools we should reconsider the importance of private enterprises, especially trade.

When silver and gold coins were already in circulation, the rich citizens could accumulate them in order to use them as store wealth. Only part of this money would remain in circulation to cover public needs, such as election costs, and private needs, such as the maintenance of a household. Private wealth in the form of money was acquired and eventually increased or just maintained intact through certain profitable activities –trade, estate holding and banking- of which probably trade was the most important. Such activities were capable to integrate only parts of the empire. When we talked about trade zones, we attested the creation of different circulation pools in Syria, South Asia Minor, East Asia Minor, North Greece and the Black Sea, and finally the Aegean Sea. This regional division suggests that even inter-regional trade was more or less restricted within certain areas. Although a great number of people who belonged to different social classes were directly or indirectly involved in the sale and buying of goods, their actions were limited and they did not have the power to integrate the economy of the empire. Merchants followed certain trade routes that were facilitated by the sea or by an elaborate network of roads.

The ‘odd’ structure of coin finds from neighbouring regions could confirm further this theory. Specifically, the museum of Yiannena presents an ‘abnormal’ coin structure that does not fit the pattern of neighbouring areas such as Corfu or Thessaly

[charts 9, 11]. The reason for such a difference is probably that the area is isolated between mountains and gorges and that there are no trade routes towards the East or the West that lead to nearby regions. Even Egnatia Road that lies south of this region did not seem able to facilitate extensive trade activities. Geographical obstacles and the inadequacy of the existing system of roads probably caused also the numismatic isolation of central Asia Minor. Secondly, the structure of coin finds from the museum of Afyon (Phrygia) is quite different from the structure of coin finds in the museum of Sinop (Black Sea) [chart 14]. There probably were no important trade routes that lead from one place to the other and the road network perhaps was not sufficient for commercial activities. On the other hand, the pattern of coins from Sinop was the same as the pattern of coins from Corfu that is situated in the Adriatic [chart 15]. The only connection between these two places is the sea that virtually diminishes the distance. Sea trade expanded rapidly after the unification of the Mediterranean and the establishment of *pax romana*. Individual merchants used the advantages offered by the Roman State, they managed to expand their activities and subsequently to achieve the numismatic integration of key-ports. Although the mainland remained isolated, the cities near seashores were transformed into cosmopolitan metropoleis.

The existence of a number of different circulation pools in the Eastern Mediterranean and the diverse coin patterns between neighbouring regions cannot possibly support the theory of the integration of the Roman empire. On the other hand, eastern provinces were not completely isolated from each other. In fact, there is no evidence suggesting that administrative barriers had any effect on the creation of economic zones. It seems that profitable enterprises, such as trade, facilitated the movement of coins through sea or land routes and were responsible for the creation of wide circulation pools.

CONCLUSIONS

All in all, the structure of coin hoards and coin finds allow us to recognise patterns of circulation of precious metal coinage in the provinces of the Eastern Roman empire. Since these patterns differ from region to region, we should seek the

¹⁴⁹ See above.

factors that caused these variations among the activities of the State or individual profitable enterprises. The main expense of the State which was paid in coin was the sustenance of the army during both peaceful and war periods, although other expenses such as administration, handouts or personal gifts probably also affected the supply of precious metal coins as well as the monetization of the eastern provinces. The study of coin evidence, or rather the lack of it, suggests that the role of the army in the monetization of the empire may have been important but it was not crucial. Therefore we should look for other factors, mainly private economic activities that could have promoted the distribution of coinage.

It seems that the most profitable activities in the Roman empire were possibly connected with private enterprises such as regional as well as interregional trade. It is probable that the rich inhabitants of the empire were directly or indirectly involved in profitable activities, that resulted in the accumulation of wealth in coins, precious metals, jewellery or other goods. The owners of a substantial amount of this wealth probably used to hoard part of it in the form of precious metal coins. Savings hoards that were found in the harbour-cities and their surrounding areas of the eastern Mediterranean Sea could suggest the use of coins in the course of commercial transactions. Particularly, common patterns of circulation that characterise the most important ports of the Aegaen (such as Athens, Patra, Corinth, Ephesus and Rhodes) could indicate the effect of trade in the circulation of silver coins.

The importance of the state as well as of private factors in the distribution of coinage varied from area to area. An essential element that affected these regional patterns was the diverse geographical characteristics of the eastern Mediterranean. Although the existence of mountains on the mainland could not create wider circulation pools, the Mediterranean Sea as well as rivers and roads probably made possible a higher degree of monetary integration. Furthermore, the differences between militarised and non-militarised provinces as well as the variations between urbanised and non-urbanised areas affected the use and circulation of coinage. So far, we have managed to identify the main circulation pools of a) Syria, b) Northern Greece and Turkey, c) Southern Aegean Sea, d) Southern Turkey and e) Eastern Anatolia. Unfortunately, I could not establish the exact 'boundaries' between these pools mainly because I did not have the opportunity to list the coins of more local museums.

THE PRODUCTION OF PRECIOUS-METAL COINAGE

INTRODUCTION

We have already seen in the previous chapter the different mechanisms of supply and distribution that affected the circulation of coinage in the Roman empire. First of all, the Roman State supplied newly minted coins mainly to the army, the administration and building programs in the form of payments. On a second level, individuals used this money extensively for commercial and other transactions, thus creating pools of circulation within regions. Apart from the effect that soldiers and merchants had on the movement of coins, it is equally important to take into consideration another economic element that probably influenced the circulation of coinage: mint production. Rome and other 'mainstream' mints every year (or even more often) introduced new issues that were going to circulate throughout the empire. The size of these issues could affect the characteristics of the circulation pools during different periods.

It is possible that the decisions of the emperors concerning the volume of production would change according to their current needs for money. A sudden increase in the payment of soldiers or the financial burden of a new military campaign could result in a higher mint output. In this chapter I intend to demonstrate that the political and military turmoil of the third century AD could be responsible for fluctuations in the volume of production of silver coins. In fact, an increase becomes apparent when we analyse anomalies in the structure of coin hoards, as well as the structure of excavation and stray finds from the eastern provinces, in comparison to the 'normal' structure of coin finds from the Antonine period. Changes in the patterns of coinage coincide with debasements that eventually led to extensive monetary reforms.

It is important, first of all, to assess who was responsible for the production of coinage and therefore who would profit from the monetary reforms. In the following section I will attempt to show that the emperor was the central authority that intended to regulate production throughout the Roman empire. Such control would eventually allow him to increase the number of coins available for State payments without imposing new taxes or confiscating properties. This practice was followed also

during the third century, when the army demanded higher payment and when invasions and civil wars plagued the provinces.

AUTHORITIES

It would be illuminating to explore the nature of the authorities that were responsible for the issue of coins in the Roman empire. These authorities were probably able to enforce the circulation of coinage within a certain area, although it is almost certain that the structure of the economy was not always dictated by the needs of the existing political or administrative structure but sometimes varied according to the needs of the citizens, geographical limitations and other parameters¹. The main mint for the production of silver coinage in the Empire from the reign of Augustus until the middle of the third century AD was situated in Rome. At the same time other 'mainstream' mints functioned in the provinces and produced precious metal coins. The mints of the eastern provinces – Cyzicus, Nicomedeia, Emesa, Laodicea ad Mare, Antioch, Ephesus, Pergamum, Caesarea Cappadociae, Commagene and Alexandria- issued precious-metal coins intermittently for emperors and usurpers. In the West the mints of Gaul –Lugdunum, Nemausus- and Spain –Colonia Caesaraugusta, Colonia Patricia, Tarraco- were active for brief periods of time. The mints of Italy -Milan and Aquileia- and the Balkans –Poetovio, Carnuntum, Viminacium, Siscia and Sirmium- undertook the production of silver coinage mostly during the third century. The above mints issued coins intermittently and the volume of their output seems to be quite low until the reign of Gallienus, with the brief exception of the Civil Wars and the early

¹ See chapter 2, for factors affecting the circulation of coinage.

Severan period². There were also gold coins mainly minted in Rome apart from a few rare gold issues minted in the provinces³.

The authority responsible for the issue of precious metal coins in Rome was the emperor. We trace the idea of the highest magistrate, who has to concern himself with the issue of currency, already in the work of Pseudo-Aristotles, *Oeconomica*⁴. This ideological background probably affected also the Roman thought. Third century AD sources suggest that only the emperor had ultimate power over coinage since he was the only one who could give permission to issue new precious-metal coins⁵ bearing his own symbols. If individuals defied this rule, the State would treat them as enemies and take measures against them⁶. Furthermore, emperors that were unlucky enough to lose their power or even their life, could not any more be represented on the currency and were condemned to *damnatio memoriae*⁷. Such was the power of coinage and such was the importance of the imperial portrait on it that, once, a knight who carried a coin into a brothel was imprisoned⁸, possibly accused of treason.

The emperor needed to keep hold of the right to issue precious metal coinage. It is evident that coins were not only a financial instrument but also a political one that facilitated the advertisement of the ideas and the programs of the State. The emperor tried to establish his power and to be accepted as a charismatic ruler. His subjects had to be convinced that he possessed gifts or talents essential for

² Mattingly, H., Roman Coins from the Earliest Times to the Fall of the Western Empire, 2nd ed., London: Methuen, 1960, pp.101-120; Mattingly, H., Coins of the Roman Empire in the British Museum, I, Augustus to Vitellius, London: Trustees of the British Museum 1923, pp. xiii-xxii; Mattingly, H., Coins of the Roman Empire in the British Museum, II, Vespasian to Domitian, London: Trustees of the British Museum 1930, pp. xi-xiii; Mattingly, H., Coins of the Roman Empire in the British Museum, III, Nerva to Hadrian, London: Trustees of the British Museum 1936, pp.xi-xiv; Mattingly, H., Coins of the Roman Empire in the British Museum, IV, Antoninus Pius to Commodus, London: Trustees of the British Museum 1940, pp. xi-xiii; Mattingly, H., Coins of the Roman Empire in the British Museum, V, Pertinax to Elagabalus, London: Trustees of the British Museum 1950, pp. xiii-xvii; Carson, R.A.G., Coins of the Roman Empire in the British Museum, VI, Severus Alexander to Balbinus and Pupienus, London: Trustees of the British Museum 1962, pp. 1-10; Carson, R.A.G., Coins of the Roman Empire, London/ New York: Routledge 1990, pp. 218-275.

³ Burnett, A., M. Amandry and P.P. Ripolles, Roman Provincial Coinage: From the Death of Ceasar to the Death of Vitellius (44 BC to AD 69), I, London: British Museum Press / Paris: Bibliothèque Nationale 1992, p. 26; Burnett, A., M. Amandry and I. Carradice, Roman Provincial Coinage: From Vespasian to Domitian (AD 69-96), Vol. II, Part I, London: British Museum Press / Paris: Bibliothèque Nationale 1999, p. 8; Bland, R.F, Burnett, A.M. and S. Bendall, 'The Mints of Pescennius Niger in the Light of Some New Aurei', Numismatic Chronicle 147 (1987), pp. 65-172.

⁴ Pseudo-Aristotle, *Oeconomica*, 1345b20.

⁵ Herodian 2.15.5.

⁶ Dio 80.4.7; Herodian 1.9.7.

⁷ Dio 78.12.6

⁸ Dio 78.16.5.

the well being of the ordinary people. This charismatic ruler allegedly had certain virtues that would allow him to strengthen his legitimate position and prove that he was necessary for the existence of the empire. Specifically, the emperor possessed divine power beyond the reach of humans. A number of personifications (*clementia*, *iustitia*, *pietas*, etc.) were used to identify the various aspects of this power. Only the morally best man was fitted to rule, and only virtue in the moral sense, not power or wealth of fortune elevated men above the level of the human⁹. These personifications occurred on Roman Imperial coins throughout the Roman period advertising the virtues of the emperor, legitimising his throne and declaring his strength.

On the other hand, the financial reasons that favoured strict imperial control over precious-metal coinage seem to be evident. I already suggested in the previous chapter that the production of precious metal coins facilitated imperial payments during the Roman period. Issues of silver and gold coinage enabled the emperor to pay the army and maintain his administrative mechanism. Apart from the convenience that the coins would offer in terms of their transportation and guaranteed value, they would have also brought some profit to the issuing authority. A slight overvaluation and subsequent debasements during the Principate that reduced further the fineness of the silver currency did not seem to alter the monetary system significantly. Instead, while the legal value of the coins remained the same, the surplus derived from the reduction of fineness ended up in the Roman Treasury. Moreover, there is a possibility that the price of bullion was lower than the price of the coin itself. Even if debasements did not occur, the profit from the minting of coins would have been able to cover mint expenses, thus allowing a certain profit to the issuing authority.

The same reasons (ideological and political as well as financial) probably initiated the centralisation of Roman Imperial issues and their confinement to the mint of Rome for more than two centuries. We know that the city of Rome was always the political, administrative and economic centre of the Empire. All the important decisions that enabled the bureaucratic mechanism to function, even when the emperor himself was not in the city, were allegedly taken within its walls. Mattingly¹⁰

⁹ Wallace-Hadrill, A., 'The emperor and his virtues', *Historia* 30 (1981), p. 298, 315 and 319.

¹⁰ Mattingly, *Roman Coins*, pp. 111 and 114.

was the first to notice the phenomenon of centralised mint production, starting with the reign of Augustus and finishing during the first half of the third century AD. He assumes that there was a very firm principle that Rome was the proper place for the issue of imperial coins, otherwise the wars of Domitian and Trajan on the Rhine and Danube, and the empire-wide wanderings of Hadrian would naturally have called local mints into being. The emperor's only innovation was to divide the mints into sections or '*officinae*' and to allot to each of them a special part of the coinage. They preferred to keep those '*officinae*' within the capital itself, instead of sending out 'branch' mints in the provinces.

The control of the production of precious metal coins remained centralised, even in cases of unrest and civil wars. The need for increased production of silver coins away from Rome forced emperors to issue *denarii* in State mints situated in the eastern provinces, instead of allowing cities to issue their own silver denominations. We see this phenomenon for the first time with the outbreak of the Civil War and the 'Year of four emperors' during the reign of Vespasian. These *denarii* issues are the last substantial ones, which can with some probability be attributed to eastern mints prior to the Severan period (apart from some that were issued by Hadrian). The issues are large and carefully organised, they are compact in time and they were produced at the capitals of the two most important provinces in the East, Antioch and Ephesus. According to Metcalf, there is no known historical consideration which demanded their production and they probably represented an attempt to extend the *denarius* system to the eastern Roman Empire¹¹. I would like, though, to suggest that the issue of official silver denominations would emphasize the supremacy of Rome on the inhabitants of the eastern provinces and the authority of the emperor, which was severely contested by usurpers at the time. Furthermore, the financial necessity for these issues may be easily recognised, since the troops stationed in the eastern provinces needed their payment without delay, because of the explosive circumstances.

The centralisation of minting of imperial coinage, as described above, lasted for the first two centuries almost unaltered. Significant changes, though, took place at

¹¹ Metcalf, W.E., 'The Flavians in the East', in T.Hackens and R. Weiller (eds.), Proceedings of the ninth International Congress of Numismatics, Berne, September 1979, Louvain-la-Neuve/Luxemburg 1982, pp.334-5.

the end of the reign of Valerian, when decentralization of minting assumed larger proportions. The satisfactions of the needs of the whole empire for precious metal as well as bronze coins gradually fell on imperial mints established in the East and in the West. The control of these mints that produced imperial *denarii* instead of provincial issues remained in the hands of the emperor. Decentralized mint activity was probably part of wider administrative changes that took place during the third century AD.

Dio's declaration that "none of the cities should be allowed to have its own separate coinage or system of weights and measures; they should all be required to use ours"¹² coincides with the imperial ideology that defended the exclusive right of the emperor to issue his own coinage. The strict imposition of the imperial weight standards, though, throughout the empire was not entirely achieved. Other coinages, apart from the *denarius*, circulated in the provinces of Greece, Asia Minor and Syria even after the Roman annexation.

One of the most favourable and long-lasting coinages that were minted sporadically until the Severan period was the cistophoric. Its first imperial period of production under Augustus ended ca. 19 BC, and was revived only by Claudius; there is then a gap until the reigns of Titus and Domitian when it flourished. The production of small issues under Nerva and very small issues under Trajan did not extend later than AD 102. The Hadrianic cistophoric coinage is much more abundant, probably approaching in volume that of Augustus himself. Finally, the Severan *cistophori*, 198-202 AD, were the last of these provincial issues¹³. It has been suggested that *cistophori* were overvalued during the Roman period. According to Walker's analysis¹⁴ and the subsequent interpretation of his results by Metcalf¹⁵, there is an apparent and consistent overvaluation of between 6% and 11% from ca. 70 BC to the time of Claudius. The degree of overvaluation will have been reduced almost to the point of disappearance when Nero reduced the weight of the *denarius*. Their

¹² Dio 52.30.9.

¹³ Sutherland, C.H.V., Olcay, N. and Merrington, K.E., *The Cistophori of Augustus*, London: Royal Numismatic Society 1970; Metcalf, W.E., *The Cistophori of Hadrian*, The American Numismatic Society, Numismatic Studies 15, New York, 1980; Metcalf, W.E., 'The Severan «cistophori»', *Rivista Italiana di Numismatica e Scienze Affini* 90 (1988), pp.155-166.

¹⁴ Walker, D.R., *The Metrology of the Roman Silver Coinage: From Augustus to Domitian*, Part I, British Archaeological Reports, Suppl. Series 5, Oxford 1976, pp. 26-36.

fineness and weight did not change substantially over the years up to the Severan period, when Septimius Severus reduced both their weight and fineness, so that they would comply with his debased *denarii*¹⁶.

Another provincial system of silver denominations derived also from the Hellenistic period and was based on the 'Attic' standard. Syrian tetradrachms issued in Antioch or Tyre seem to be quite common in the East during the Roman period, even though their quality was sometimes poor¹⁷. The Lycian League and other cities of Asia Minor (Tarsus, Aegae, Mopsus, Seleucia, Amisus, Cyprus¹⁸) coined silver drachms, didrachms and tridrachms¹⁹. Caesarea of Cappadocia eventually became the great mint of the East from the time of Tiberius onwards, which could be compared with the mint of Antioch²⁰. Although the decline of silver coinage becomes marked under the reign of Septimius Severus, the mint of Caesarea in Cappadocia is activated again during the reign of Gordian for the last time²¹. It is interesting to note that the number of the provincial mints increased abruptly during the Severan period. Only 3 mints issued tetradrachms by the death of Septimius Severus in eastern Roman Empire, while more than 28 mints have been observed to issue these silver coins by the death of Caracalla²². This phenomenon should be studied in combination with the increase of mint output of silver *denarii* in Rome during the same period. The reasons for such an increase will be analysed below.

The case of the *denarii* issued in the East would strongly suggest that the emperor was involved in their issue, since the denominations followed the imperial *denarius*' system. On the contrary, the cases of *cistophori*, tetradrachms, drachms etc. present us with more difficulties because these coins follow Hellenistic weight-

¹⁵ Metcalf, *The Cistophori of Hadrian*, p. 112.

¹⁶ Harl, K.W., *Coinage in the Roman Economy, 300 B.C. to A.D. 700*, Baltimore/London: John Hopkins University Press 1996, pp.99-100.

¹⁷ Wruck, W., *Die syrische Provinzialprägung von Augustus bis Trajan*, Stuttgart: Kohlhammer 1931, pp. 12-63; Ben-David, A., *Jerusalem und Tyros: Ein Beitrag zur palästinischen Münz- und Wirtschaftsgeschichte (126 a.C. - 57 p.C.)*, Basel: Mohr 1969, pp.8-9 and 14-15; Burnett, et al., *Roman Provincial Coinage*, I, pp. 7-8.

¹⁸ Recently another small mint has also been recognised in Petra of Arabia. See Butcher, K., 'Two notes on Syrian silver of the third century AD', *Numismatic Chronicle* 144 (1989), pp. 169-190.

¹⁹ Harl, *Coinage in the Roman Economy*, pp.100-101.

²⁰ Sydenham, E.A., *The Coinage of Caesarea in Cappadocia*, New York: Attic Books 1978, pp. 2-3.

²¹ Bland, R., 'The last coinage of Caesarea in Cappadocia', R. Martini and N. Vismara (eds.), in *Gloux: Collana di Studi e Ricerche di Numismatica*, Ermanno A. Arslan Studia Dicata, Milan 1991, pp.214-231.

standards; instead of the Roman 'official' weight standards. For this reason, the authority responsible for the issue of the provincial denominations based on the 'Attic' weight system has not been positively identified yet. In the following paragraphs I will suggest that a central authority, such as the provincial governor or the emperor himself, controlled all of the above mints, although they were situated in the cities of the eastern provinces.

First of all, if the fineness of the silver *denarii* minted in Rome changed, the fineness of the coins that belonged to the 'Attic' weight standard was subjected to analogous changes. For example, when the trend towards greater debasements of the *denarius* was reversed in Rome during the reign of Domitian, the fineness of the provincial silver coins issued in Caesarea of Cappadocia was also improved²³. The opposite happened during the continuous debasements of the *denarius* in the third century AD; the drachma had to adjust in fineness and weight so that it would be exchanged for the *denarius* at the same rate as before.

Secondly, a certain level of co-operation between mints, which issued silver coins, could be demonstrated. Caesarea in Cappadocia, which had not produced silver coins for 22 years and no bronze for 10 years during the reign of Gordian, 'borrowed' workmen from the nearest imperial mint, Antioch, in order to resume the issue of new coinage. Similar are the cases of Egyptian style tetradrachms of Severus Alexander and Syrian style tetradrachms of Philip, minted in Rome²⁴. Also, some Syrian silver coins of Trajan and of Domitian were probably minted at Alexandria. Similarly, some Arabian drachms of Trajan could have been minted at Antioch, which probably also produced silver for Crete²⁵. Furthermore, it has been suggested that at certain periods the mint of Rome was employed to strike provincial silver coins. The final destination of these coinages was the eastern provinces where they circulated side by side with provincial silver coins minted locally or imperial coins issued by mainstream mints²⁶. Although, it is hard to define the extent of this procedure or its

²² Bellinger, A.R., *The Syrian tetradrachms of Caracalla and Macrinus*, American Numismatic Society, Numismatic Studies 3, New York 1940; McAlee, R.G., 'The Severan tetradrachms of Laodicea', *American Numismatic Society; Museum Notes* 29 (1984), pp. 43-59.

²³ Burnett, A., *Coinage in the Roman World*, London: Seaby 1987, p. 30.

²⁴ Bland, 'The last coinage of Caesarea in Cappadocia', p.229 and 231.

²⁵ Burnett, *Coinage in the Roman World*, p. 30-31.

²⁶ Butcher, K. and M. Ponting, 'Rome and the East. Production of Roman Provincial silver coinage for Caesarea in Cappadocia under Vespasian, AD 69-79', *Oxford Journal of Archaeology* 14 (1995), pp. 63-77; Carradice, I., 'A new introduction to the Flavian coinage', in M. Austin, J. Harries and C. Smith

regularity, we should view the cooperation of mints as an indication of centralised control over silver coinage.

The exact role of the city in this process is even more difficult to assess. There is a possibility that the city participated in the production of provincial issues, since the mint was situated within its territory. My guess would be that the city was responsible for the administrative function of the mint and its workers, while the emperor provided the silver bullion, which came from his mines, and authorised his governors to supervise the outcome of the overall production. Unfortunately, we do not have any evidence that prove or disprove this hypothesis, so I will refrain from expanding further on it.

One of the questions that arise is: why did the emperor decide to issue silver coins in the provinces. In order to answer we have to take into consideration that these coins were minted irregularly and in low quantities. In the first instance, it has been suggested that *cistophori*, tetradrachms and drachms may well have been produced primarily to meet the needs of Roman forces²⁷. The mints that were situated in the eastern provinces would most likely supply the soldiers along the eastern frontier with their payment in the form of silver coins. Although we can be confident that some coinages are connected with military expenditure, there are campaigns, which 'lack' a coinage, while other coinages were produced not in connection with any known military events. For example, the production of provincial coinages during the early empire could have been part of a general coinage reform and not the result of wars: Ptolemaic and Tiberian tetradrachms from Egypt, earlier Antioch tetradrachms and perhaps Tyrian shekels were removed from circulation and partially reminted, presumably to give in exchange for the coins which were removed²⁸. The government decided not to replace the withdrawn coins with newly issued *denarii* and probably helped to sustain the existing monetary economy of the eastern provinces, where tetradrachms, drachms and *cistophori* circulated for centuries.

It would be worth exploring also the reasons for choosing an obsolete denominational system ('Attic' weight standards), instead of the 'denarial'. We could

(eds.), *Modus Operandi: Essays in Honour of Geoffrey Rickman*, BICS Supplement, Institute of Classical Studies, University of London 1998, pp. 93-117, esp. p. 95.

²⁷ Rodewald, C., *Money in the Age of Tiberius*, Manchester: Manchester University Press 1976, p.25.

²⁸ Burnett et al., *Roman Provincial Coins*, I, pp. 7-8.

answer this question if we took into account the possibility that these coins were designed to circulate only within the eastern provinces of the empire. Drachmas had been used in this area for centuries, throughout the Hellenistic period and beyond. It is obvious that these denominations were familiar to the existing population and could easily be recognised during their every day transactions. In addition, the structure and function of the provincial mints, at least in the early empire, probably facilitated the production of 'Attic' standard coins, which traditionally declared the significance of the cities. The most plausible explanation, though, is that there was no obvious economic reason for the Romans to abolish this system and to impose their own, since drachmas brought them the same profit as *denarii*.

There are significant differences in the production and the circulation of provincial silver between the provinces of Asia Minor and Syria. Specifically, the circulation of these coins in Asia Minor remained highly localised, while their level of production was comparatively low. According to one view, the *cistophorus* was much more important than the *denarius*, because in 19-18 BC Augustan *denarii* minted in Asia were made from only 18+ dies and *cistophori* from 71+²⁹. Even if that was the case during the first century, the situation changed radically during the second and third centuries, when the circulation of Roman *denarii* substituted the circulation of provincial silver coins. In fact, the scanty evidence of *cistophori*, drachms and tetradrachms from hoards and excavations would suggest a low mint output of these provincial issues³⁰.

As I have already explained, coin circulation during the early Severan and Military Anarchy period in Asia Minor included mostly imperial silver issues. The policy of Roman emperors towards the centralised minting of coinage was probably the reason for the circulation of *denarii* in areas so far from Rome. As we have already seen, during the first and second century AD, there was a very firm principle that Rome was the proper place for the issue of imperial coins. During the transitional period from the reign of Septimius Severus until the reign of Gallienus, Rome was still the only mint, which struck regularly and continuously, although now and again, a

²⁹ Burnett et al., *Roman Provincial Coins*, I, p. 7.

³⁰ Specifically during the third century AD two drachms were found in the Manyas Hoard, one drachm and a few eastern unidentified coins in the Sulakyurt Hoard, and only a handful of eastern unidentified coins in the Haydere Hoard.

provincial mint would emerge. The situation changed radically in the middle of the third century when a number of new 'mainstream' mints in the eastern and western provinces undertook the minting of the imperial currency, as I have already mentioned.

The circumstances seem to be different in the province of Syria, where the circulation of tetradrachms was wide and it covered chronologically the first two and a half centuries of the Roman empire³¹.

All in all, 218 coins came from Syrian hoards lost during the Antonine period, of which 49 were minted in Caesarea Cappadociae, 37 in Tyre, 12 in Antioch, while 51 came from Rome. Other eastern unidentified mints are represented by 79 coins. Furthermore one of the hoards includes Nabataean coins as well as Roman. Two of the hoards consisted of tetradrachms (Tiberias, Boston) and 1 is mixed (Muraba'at). Unfortunately we have no further information on the denominations in the fourth hoard. Although the hoards consist of different denominations, they demonstrate the same structure and almost the same increases and diminutions in volume of coinage. This means that the State did not necessarily distribute more *denarii* than tetradrachms.

The coin hoards lost during the Severan period confirm the same pattern. One hoard consists of *denarii* (Syria 3), one of tetradrachms (Memphis), and three contain both provincial and imperial denominations (Dura Europos 3, Dura Europos 16, Nineveh). The coins came from Mesopotamia, Syria, Arabia, Phoenice, Cyprus, Rome and 1 from Lugdunum. It seems that also in this case the majority of coins are tetradrachms.

The Syrian coin hoards buried during the Military Anarchy period demonstrate the increasing circulation of tetradrachms until the middle of the third century. Three of the hoards included *antoniniani*, eight included tetradrachms, six were mixed, one is not identified and none of them included *denarii*. The coins represent mostly the following mints: Antioch 2571, Rome 279, Cyzicus 277, Emisa 139, Tyre 75, Laodicea 32, Carrhae 19. Other coins came from the rest of Syria, Phoenicia, Cyprus, Mesopotamia, Caesarea Cappadociae and Asia Minor.

Especially, the silver coin hoards lost during the reign of Gallienus that were revealed in the course of the excavations in Dura Europos, provide us with invaluable

data if analysed separately. They consist of *denarii*, tetradrachms and *antoniniani*. The treatment of all these hoards as a single find and the assessment of the circulation of different denominations give us interesting results. The following chart shows that in the case of Dura Europos a substantial number of tetradrachms circulated there until the mid third century. A sudden increase of both tetradrachms and *antoniniani* occurred during the reign of Elagabalus, while another increase in the production of tetradrachms characterised the reigns of Trajan Decius and Philip the Arab. The same –comparatively low- number of tetradrachms and *antoniniani* were in circulation during the reign of Trebonianus Gallus. The gradual decrease of coins in circulation continued until the reign of Gallienus, when the Parthians occupied the fortress. The number of *denarii* found in the Dura Europos hoards was small compared to the larger number of tetradrachms. The percentage of *denarii* forms small peaks during the reigns of Septimius Severus and Caracalla, as well as during the reigns of Elagabalus and Severus Alexander³² [chart 16].

During the second century, the use of tetradrachms complemented, if not substituted, the *denarius* system. The production of *denarii* at Antioch under the Flavians could mark the period of the *denarius*' introduction to Syria. A second period of production took place during the reigns of Pescennius Niger and Septimius Severus. A sudden increase of local Syrian mints from three to twenty-eight took place in the early third century, during Caracalla's military campaigns. The increased production of tetradrachms should probably be connected with the increased payment of the troops by Caracalla between the years 217-8 AD. The fact that all of the 'tetradrachm' mints were represented in the coin finds from Dura Europos could suggest that coins were struck for and used by the army for the needs of the war against the Parthians in Northern Syria and Mesopotamia³³. The mint of Antioch throughout the first three centuries AD became the main provider of tetradrachm coinage for Syria, while other smaller mints only occasionally produced this

³¹ See chapter 2, for the analysis of Syrian coin hoards.

³² For the decreasing volume of *denarii* and the increasing volume of *antoniniani* until the middle of the third century AD see chapter 5.

³³ Gilmore, P.M., 'Caracalla's Silver Mints in Syria and Mesopotamia', *Numismatic Circular*, vol. 95, no. 4 (May 1987), pp. 109-110.

denomination³⁴. Imperial silver coinage that was mainly produced in Rome also circulated in the Syrian provinces, although in smaller numbers than tetradrachms.

It seems that the local population preferred tetradrachms over the imperial silver coinage³⁵ and the central government was eager to provide them in abundance. This provincial currency was designed to facilitate the payments of the administrative officers, provide for the military expenses and cover the commercial needs of the cities. The fact that the citizens had to pay commission to the banker, if they wanted to exchange tetradrachms for Roman *denarii*, did not seem to affect the preferences of the inhabitants. In fact, this exchange probably rarely took place, if the citizens could pay for their taxes also in drachms or tetradrachms.

The production of provincial silver coins gradually declined until it ceased completely in the middle of the third century. The reasons for their disappearance are probably connected to the reconstruction of the Roman monetary system and the change of the political role of the cities during the third century.

All in all, two different weight standards were in use in the eastern Roman provinces: the imperial, 'denarial' system and the provincial 'Attic' system. The emperor in fact, controlled all the mints (imperial and provincial) responsible for the production of precious metal coinage. His interest in keeping this control tight is justified by the fact that the issue of coinage was essential for both his political and financial ambitions. Coins were, first of all, the means of advertisement of the power, the virtues and the legitimacy of the imperial throne. On the other hand, the profitability of minting is another reason for the strict control over the production of silver and gold coinage. Debasement and overvaluation of silver coins could bring profits to the Roman Treasury, since they kept their nominal value. Newly minted coins were used to meet effectively imperial expenses. The evidence of coin hoards, excavation and stray finds from the eastern provinces reveal periods of intensified production of imperial and provincial coinage.

³⁴ Butcher, K., 'Coinage and currency in Syria and Palestine', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World, The Thirteenth Oxford Symposium on Coinage and Monetary History 25. – 27. 3. 1993, Berlin 1996, pp.101-112, esp. pp.103 and 106.

³⁵ *Denarii* were used during the first and second centuries and the early third century AD. From the reign of Gordian III onward the use of *antoniniani* in daily transactions took place more often. The reasons are explained in chapter five.

NUMISMATIC EVIDENCE

The third century is characterised by the increasing production of precious metal coinage, an event that took place probably for the profit of the central authorities. The lack of written sources, such as mint records, could restrain us from assessing the possible increase of mint output. The only way of documenting such a rise is by relying on the numismatic data as they are found in excavations or in hoards. Patterns of coins become apparent when demonstrated with the help of histograms. Increases or decreases in the volume of production are indicated with peaks or troughs.

First of all, it is noteworthy to compare the number of published hoards buried during the Severan period with the ones lost during the Antonine periods. From the Antonine era we have two hoards, while from the Severan era we have again only two silver hoards from Asia Minor. On the other hand, four published silver hoards were lost in Syria during the Antonine period, while six were lost during the Severan period. In order to analyse this evidence, we should take into consideration the above numbers of hoards in relevance to the dynastic years of the Antonines and the Severans. We know that the Antonine period lasted for at least one century, while the Severan period covers only one third of this time. In this case, we should multiply the number of the Severan hoards by three. Therefore, the rate of the Antonine and Severan hoards from Asia Minor is 2: 6, and the rate of Antonine and Severan silver hoards from Syria is 4: 18. We can observe an increased number of hoards lost during the Severan era that could indicate either an increase of the death rate or an increase of the coins in circulation. We can attest a slight variation in another part of the empire. While two hoards dated to the Antonine period come from Greece, there is only one silver hoard that was buried in the Peloponnese during the Severan period³⁶. There is a possibility, though, that such hoards are not yet published.

³⁶The last coin of the Ereastrole Hoard belongs to the early years of the reign of Septimius Severus. There is a possibility that such hoards are not yet published.

On the other hand, the structure of the coin hoards may be even more revealing. As we have seen in the course of the first chapter, the 'ideal' coin hoard consists of the same number of 'archaic' and of 'modern' coins. A chart would probably represent this distribution by a line rising gradually until it reaches its peak in the middle and subsequently declining also steadily until the year that the hoard was lost. The following hoards that come from the third century are far from 'ideal' since they present certain anomalies. The most obvious are the peaks during the reigns of Septimius Severus and Caracalla or the various peaks during the reigns of Gordian III, Philip I, Trajan Decius, Trebonianus Gallus, Valerian and Gallienus, which disturb the even distribution of coinage within the chart. Such formations could perhaps best be explained by increased mint output.

One of the hoards that were lost during the Antonine period came from Manyas district (anc. *Dascylaeum* in Bithynia), while another came from Caesarea in Cappadocia. The Manyas hoard consisted of 208 *denarii* from the mint of Rome and 2 drachms from the mint of Amisus and was buried around 161 AD. The number of coins increases gradually and it forms a peak during the reigns of Trajan (31,73%) and Hadrian (38,46%). The hoard from Caesarea differs slightly mainly because it was buried during the reign of Commodus. Since the date of burial is later than the previous hoard, then we should expect the inclusion of coins from the reigns of Antoninus Pius, Marcus Aurelius and Commodus [chart 17].

The silver coin hoards from Syria that were buried during the Antonine period are four: Syria 1, Tiberias, Muraba'at and Boston hoards. Since different peaks and troughs characterise the early coinage, we cannot discern a common pattern. On the contrary, from the reign of Vespasian until the reign of Nerva all hoards confirm a decline in the production or availability of coinage³⁷. A peak is formed only during the reign of Trajan, a characteristic that reminds us of the structure of Asia Minor hoards. We should also underline the fact that most of the hoards were buried during the reigns of either Trajan or Hadrian [chart 18].

Cephalenia and Krani hoards were lost in Kephallonia during the Antonine period. The Erestrole hoard that was lost in Patras slightly later, the first years of the

³⁷ It has been suggested that Domitian's finest coins were withdrawn during subsequent reigns. See Carradice, I., *Coinage and Finances in the Reigns of Domitian (AD 81-96)*, BAR International Series 178, Oxford 1983, p. 74.

reign of Septimius Severus, shows the same structure [chart 19]. Cephallenia and Krali hoards are almost identical and they form their higher peaks during the reigns of Hadrian and Marcus Aurelius. On the other hand, Ereztrole Hoard shows high peaks during the reigns of Nerva, Trajan, Marcus Aurelius and Commodus.

The silver hoards from Asia Minor that belong to the Severan period could help us describe the circulation of coinage during the early third century. From the two coin hoards that have been discovered, the Sulakyurt Hoard and Turkey Hoard have a similar structure. They cover a short span of time, they represent the early Severan period and they form their highest peak during Caracalla's time. The lack of Antonine coins in them indicates that both hoards were accumulated after the monetary changes of the early third century, when the circulation of numerous issues of debased silver coins probably supplanted the Antonine silver coinage [chart 20].

The coin hoards that were lost in Syria during the Severan period are the following: Syria 6, Dura Europos 3, Dura Europos 16, Nineveh, Memphis and Tell Kalak hoards. Their structure seems to be different from the structure of the Severan hoards that come from Asia Minor. One of the Syrian hoards starts during the Hellenistic period while the rest contain coins from the reign of Nero or the Flavian dynasty. Although we observe a higher concentration of coins during the reigns of Galba, Vespasian and Titus, there is not a common pattern for all hoards. At least three of the hoards form a peak during Trajan's reign, after which the number of coins remains stable for the rest of the Antonine period. Of course, some of the hoards present peaks of various heights during different reigns. The Nineveh Hoard, Syria 3, Dura Europos 3 and Memphis form a peak during the reigns of Septimius Severus and Caracalla. Dura Europos 16 hoard has a different structure. Only a few coins were issued during the Antonine period, although there was a short rise during Caracalla's reign to be followed by a high peak (90%) during the reign of Macrinus [chart 21].

The silver hoards from Roman Asia Minor and Greece, which were buried between the period that begins during the reign of Maximinus and finishes during the reign of Gallienus, are numerous. Therefore they may help us describe not only the structure of the circulation of coinage but also the volume of the annual mint production. Overall we have 10 hoards from Asia Minor containing mostly *denarii* and *antoniniani*. They begin during different reigns, but only a handful of coins have been attributed to emperors before the time of Septimius Severus. Some of the hoards

show an early peak during Caracalla's reign (Eastern, Yatan, Haydere hoards) but after his reign they decrease suddenly. All hoards show higher or lower peaks during the reigns of Gordian III, Philip the Arab, Trajan Decius and Trebonianus Gallus. The only exceptions to the above rule are: a) the Yatan hoard, which was buried during Gordian's reign and shows a peak during the reign of Maximinus, b) the Western Turkey 1 and Western Turkey 2 hoard, which form peaks of coins during the reigns of Valerian and Gallienus, and c) the Haydere and Eastern hoards that include coins of the late first or early second century, although they were buried in the mid third century³⁸. [chart 1].

Silver coin hoards from Greece belong mainly to the reign of Gallienus (Roufou B, Karpenisi, Porto, Greek, Greek, Corinth, Corinth 2, Athens 2, Lesbos hoards) although one of them was probably buried during the reign of Gordian (Kavala Hoard). From the above, five hoards contain only silver coins (Roufou B, Karpenisi, Greek, Greek 3, Corinth hoards), while the rest are mixed with bronzes. In order to study the intensification of mint production we should not take into consideration mixed hoards of silver and bronze, which will be interpreted in another chapter³⁹. The coins in the Greek hoards seem to increase gradually in order to form a peak during the reigns of Valerian and Gallienus. It is also significant that they do not contain any coins from the Severan period or earlier, unlike the Asia Minor hoards of the Severan period [chart 5].

Syrian silver coin hoards that were lost during the period of Military Anarchy demonstrate a completely different picture. The basis of their individuality lies mainly in the substantial production of tetradrachms from local mints throughout the first three centuries AD. Therefore we should divide them in two different groups according to the denominations that they contain.

Eighteen silver coin hoards belong to the Military Anarchy period: Turkey 3, Turkey 4, Antioch 1, Antioch 2, Syria 6, Syria 7, Dura Europos 1, Dura Europos 2, Dura Europos 4, Dura Europos 5, Dura Europos 6, Dura Europos 8, Dura Europos 14, Dura Europos 15, Hama, Rafah, Jordan, Gush Halav hoards [chart 22].

³⁸ As I already mentioned in the previous chapter the Western Turkey 1, Western Turkey 2, Haydere and Eastern hoards were probably not 'normal' and they cannot demonstrate accurately the circulation of coins in the area.

³⁹ Only Porto Rafti and Lesbos hoards are statistically analysed, because their coins have been positively identified.

The tetradrachm hoards –Syria 6, Syria 7, Dura 5, Dura 8, Rafah, Jordan, Turkey 3, Turkey 4- demonstrate a common structure. None of them contains coins from the Antonine period and they all begin during the Severan period. Specifically, they form peaks during the reigns of Septimius Severus and Caracalla, Macrinus and Elagabalus. The highest volume of coinage, though, comes from the reigns of Gordian III, Philip the Arab, Trajan Decius and Trebonianus Gallus [chart 23]. Hoards consisting of both imperial and provincial coinage – Dura Europos1, Dura Europos 6, Dura Europos 2, Dura Europos 4, Dura Europos 15, Gush Halav- are slightly different, mainly because three of them (Gush Halav, Dura Europos 4, Dura Europos 15) contain coins not only from the Antonine but also from the Flavian period. Like the tetradrachm hoards they also form smaller peaks during the reigns of Septimius Severus, Macrinus and Elagabalus, while they form higher peaks during the reigns of Gordian III until the reign of Trebonianus Gallus [chart 24]. The silver hoards that contain exclusively *antoniniani* – Antioch 1, Dura 14, Hama- are entirely different since they present coins from the reigns of Trebonianus Gallus, Valerian and Gallienus⁴⁰ [chart 4].

The excavations in Athens, Corinth, Patras and Ephesus demonstrate another structure. The distribution of coinage is almost uniform during the Antonine period, while it forms a small peak during the reigns of Septimius Severus and Caracalla. The volume of coinage increases abruptly during the reign of Gordian III and continues rising until it reaches its highest peak during the reign of Gallienus [chart 7].

The numismatic material from local museums –Fethiye, Afyon, Yalvaç, Sinop, Yiannena, Thessalonica, Komotene, Rhodes, Volos- shows a completely different picture from the above. There seem to be strong diversities between different regions, although they all present a few similarities. For example, they form smaller peaks during the reigns of Trajan, Hadrian, Marcus Aurelius and Caracalla, as well as higher peaks during the reign of Elagabalus. The volume of coinage increases during the reigns of Gordian III, Philip the Arab and Trajan Decius, but it declines gradually some time between the reigns of Trebonianus Gallus and Gallienus [chart 25].

The results that arise from the comparative analysis of the above numismatic evidence can be summarised as follows. To begin with the Severan hoards, Sulakyurt

⁴⁰ For the increased volume of *antoniniani* and the change of their role in the mid-third century AD see chapter 5.

and Turkey, we can see that they included a high number of Septimius Severus' and Caracalla's coins and only a handful of coins from the Antonine period. An increase in the volume of coinage during the reigns of Septimius Severus and Caracalla is confirmed by later hoards.

Concerning our examples of silver hoards from the period of Military Anarchy lost in Asia Minor, we encounter the following. First of all, we attest a peak during the reigns of Septimius Severus and Caracalla. We can easily explain the peak in Yatagan hoard because it was concealed immediately after the Severan period and it bears the same characteristics as the hoards buried before the reign of Maximinus. This hoard shows that, at least, until the reign of Philip the Arab or slightly later the impact of Septimius Severus' coinage was quite strong. The rest of the hoards were buried during the late Military Anarchy period. Unlike the earlier Yatagan Hoard, they do not include substantial number of coins from the early Severan period, but they form several high peaks during the reigns of the Military emperors (Gordian III - Gallienus). In this case we may suggest that following the reign of Philip the Arab (when Yatagan Hoard was buried), most of the early Severan coins were withdrawn from circulation because of their higher fineness. Since the emperors needed money for their military expenses they did not hesitate to melt the silver *denarii* minted by Septimius Severus and Caracalla and subsequently issue new debased *denarii* or *antoniniani*.

Severan coin hoards from Syria demonstrate the same structural characteristics with Severan coin hoards from Asia Minor, since they include a large number of coins from the reigns of Septimius Severus and Caracalla (one has a disproportionate number of coins from the reign of Macrinus). Other hoards from Syria that belong to the Military Anarchy period indicate a rise in the production of tetradrachms, *denarii* and *antoniniani* coins during the reigns of Septimius Severus, Caracalla and especially Elagabalus. On the other hand, the absence of Severan coins in Greek hoards does not necessarily suggest a decreased production. This phenomenon probably indicates the strong influence of the central mint of Rome and the repeated recoinages that put Severan coins out of circulation by the mid-third century. All of these hoards form high peaks during the reigns of different Military emperors, thus indicating repeated increases in the mint output.

The excavations from both Asia Minor and Greece show only a very small peak during the reigns of Septimius Severus and Caracalla. Furthermore, coins from some local museums indicate rises not only during Septimius Severus reign but also during the reign of Elagabalus. These peaks, though, are not higher than certain peaks during the Antonine period, a fact that I am not able to explain yet. On the other hand, they indicate increases in the production of coinage from the reign of Gordian III onward. The highest peak is formed during the reign of Gallienus.

In order to comprehend the importance of these changes in the production of coinage and the way the monetary system functioned we should try to find out under which circumstances the changes took place. It is almost certain that the emperor would not have attempted to increase the mint output unless his expenses were not in line with his revenues. Especially during the third century such behaviour was understandable, due to exceptional circumstances. Rises in the volume of production can easily be explained if we take into consideration the events that took place during this period as well as the financial needs of the State.

REASONS FOR MONETARY REFORMS

The above evidence show that the production of mainstream coinage, whether it came from the mint of Rome or from other provincial mints, should have increased substantially in the beginning of the third century. The reasons for such an increase should be sought in the political and military turmoil of the era that forced emperors to look for new means to pay their excessive expenditures. Especially, the army that participated actively in all changes of power demanded increased payments every time a usurper appeared on the horizon. Contemporary writers, mainly Dio Cassius and Herodian, noted the dangers arising from the excessive payments of the soldiers and advised against it. The major events that were responsible for such changes in the monetary system as well as the mint production should be outlined in order to understand their effects on the economy.

After the violent death of Commodus in 192 AD and the subsequent brief reign of Pertinax, civil war broke out between Didius Julianus, Pescennius Niger, Clodius Albinus and Septimius Severus. Herodian mentions more than once that

following the reign of Commodus money became 'the most attractive inducement for men'⁴¹, and it was used by the emperors in order to 'bribe' the soldiers and 'win over their allegiance'⁴². The political unrest that followed resulted in military anarchy; therefore the situation demanded large sums of money spent for the maintenance of the loyalty of the army. According to Herodian, when Didius Julianus made his bid for the throne, 'this was the first time that the soldier's characters begun to be corrupted. They learned to have an evil and insatiable lust for money and to ignore the feeling of respect for their emperors...'⁴³.

At the end of the second century AD Septimius Severus became the founder of a new dynasty that ruled the Roman empire for the first quarter of the third century. His rule was established after a series of civil wars and military strife that set the political characteristics for the whole of the third century. He reigned for the next 18 years fighting against the Parthians⁴⁴ and the British⁴⁵. Unfortunately, the continuous military expeditions as well as the other public expenses must have been damaging to the economy of the country and probably burdened the inhabitants of the empire. Since Severus' aim in 197 was to win the loyalty of the army and defeat his opponents, he increased the number of his troops and he increased the soldiers' pay⁴⁶. His behaviour undermined military discipline 'by teaching the men to be greedy for riches and seducing them into a life of luxury'⁴⁷. Other privileges were also granted to them, such as legal recognition of their marriages, assignment of allotments of land, and facilities in order to engage in commercial enterprises. Since wars were not as profitable as they used to be during the first and the beginning of the second century, other sources of revenue had to be found; therefore the confiscation of properties, direct or indirect taxes and the debasement of silver coinage became regular practice.

His son Caracalla (211-217 AD) continued the expansion of the military basis of the empire mainly because he thought that this was the basis of his own power. In order to sustain the support of the expanded military machine he

⁴¹ Herodian 5.8.3.

⁴² Herodian 1.9.1; 1.9.4.

⁴³ Herodian 2.6.14.

⁴⁴ Dio 75.1 and 9-12; ILS 417; HA 12.

⁴⁵ Dio 75.5, 76.13; Herodian 3.14; ILS 431, 436.

⁴⁶ Herodian 3.8.4; SHA 12.2. Neither source quantifies the increase. For details on army pay rises see: Alston, R., 'Roman military pay from Caesar to Diocletian', *Journal of Roman Studies* 84 (1994) pp.113-123.

⁴⁷ Herodian 3.8.4-5.

raised once more the pay of the army and he bribed the soldiers with *donativa*⁴⁸, while he fought against the Germans⁴⁹, the Parthians⁵⁰ and the Armenians⁵¹. His life was a continuous campaign and an enormous amount of money must have been spent not only on food supplies, military equipment and other expenses but also on subsidies to the Alamanni⁵². Furthermore in cases of murder, such as Geta's, money was in need so that it would cover up the bloodstains on Caracalla's dress⁵³. The excessive sums of money spent at that time resulted in a serious change in the mentality of the soldiers. They 'became so exhausted in body and so dejected in mind that they no longer cared at all about the largesses'⁵⁴, asking constantly for more in every occasion. In fact, when they accepted donatives they thought that the emperor was paying off a debt rather than distributing a largess⁵⁵. Caracalla in 212 used to say: 'nobody in the world should have money but me; and I want it to bestow upon the soldiers'. Once when Julia chided him for spending vast sums upon them and said, 'There is no longer any source of revenue, either just or unjust, left to us' he replied, exhibiting his sword, 'Be of good cheer mother: for as long as I have this, we shall not run short of money'⁵⁶.

After his death, Macrinus, a man who was not a member of the Severan dynasty and did not belong to the senate⁵⁷, succeeded him but his life did not last long enough to allow him sufficient time for radical changes. He attempted, though, to fix the pay of those serving in the Praetorian Guard at the amount established by Severus. This effort, although praised by some, ended up in ruins⁵⁸ because the soldiers 'were angered by the reduction of their pay and by the withdrawal of the prizes and exemption from military duties which they had gained from Caracalla'⁵⁹. Macrinus finally admitted, 'it was impossible, on the one hand, to give the troops their full pay in addition to the donatives that they were receiving and impossible, on the other

⁴⁸ In 212 Caracalla, according to Herodian (4.4.7), increased pay by fifty per cent. Although Herodian refers explicitly to the praetorians, Dio (78.36.3-4) suggests that the increase was paid to all the troops.

⁴⁹ Dio 77.13; ILS 451.

⁵⁰ Dio 77.12, 78.1-3; Herodian 4.10.

⁵¹ Dio 77.21.

⁵² Dio 77.14.

⁵³ Dio 78.12.4; Herodian 4.4.

⁵⁴ Dio 90. 3. 4-5.

⁵⁵ Herodian 2.11.7-8.

⁵⁶ Dio 78.10.4.

⁵⁷ Dio 78. 11 and 14; Herodian 5.1.

⁵⁸ Dio 90.12.7.

⁵⁹ Dio 90.28.1-2.

hand, not to give it...'⁶⁰. The emperor had to accept the lack of military discipline that finally led to the complete submission of the State to the Army. The success of each emperor to remain on the throne relied on the will of the soldiers.

Macrinus was soon killed and subsequently replaced by the notorious Elagabalus (218-222 AD). Although he was well known for his religious, sexual and other eccentricities, there is only scanty information on his political or economic activities⁶¹. Probably his brief reign could not be characterised by any major changes while his administration should have followed the lines of the administration of Caracalla. It is also interesting to note that despite unlimited spending, there were no new taxes. When he was murdered, Severus Alexander (222-235), the last of the dynasty, took his place. Alexander had to face the attacks of the Parthians⁶² and the Germans⁶³, a fact that urged him to follow his predecessors' political orientation by leading military expeditions and by benefiting economically his army or by paying subsidies. Also the indication that the praetorian prefects were supposedly given senatorial rank⁶⁴ allows us to assume that the political power of the army increased substantially. Alexander's reign lasted 13 years under the influence of his mother, Julia Mamaea, and the Senate, and is said to have been exemplary by the author of the *Scriptores Historiae Augustae*⁶⁵. The State regulated expenditure in a way that would help the recovery from previous extravagances, although the outcome may not have been the expected one.

As we have already seen, the coin hoards that were buried during the period of Military Anarchy are more than the hoards buried during the Severan and Antonine periods. Furthermore, the structure of hoards differs, showing peaks of coinage during different reigns, according probably to the exact time that the treasure was buried. It is incredible, though, the fact that numismatic evidence from every part of the empire is in agreement. Coin hoards from Greece, Asia Minor and Syria, excavations and local museums from Greece and Asia Minor, all of them indicate

⁶⁰ Dio 90.36.2-3.

⁶¹ Butler, O., 'Studies in the Life of Heliogabalus', in H. Sanders (ed.), *Roman History and Mythology*, Ann Arbor: University of Michigan Press 1910.

⁶² Herodian 6.3-6; SHA, Sev. Alex. 55-56.

⁶³ Herodian 6.8.9; SHA, Sev. Alex. 59.

⁶⁴ SHA, Sev. Alex. 21.

⁶⁵ SHA, 'Vita Alexandri'.

risers in mint output after the reign of Gordian III. The increase in lost hoards should be connected with the increased danger that threatened the Roman empire at the time.

Information on the post-Severan emperors do not allow us to reconstruct in detail the policies concerning the army and state expenses, although they seem to have followed the same political and financial ideas of their predecessors, since they never had either the time or the power to promote any innovations. In AD 235 Maximinus was the first emperor of 'humble' origin to rise completely from the ranks⁶⁶. In order to establish a firm rule he doubled the pay of the troops as part of his bid for the throne⁶⁷. Not only did he conduct wars on the Danube successfully⁶⁸, but he also had to face the various usurpers that doubted his right to the throne⁶⁹, a situation that forced him into a ruthless search for money. He managed to kill the Gordians who were proclaimed emperors⁷⁰ but subsequently, since he proved to be unable to establish his rule, his soldiers murdered him⁷¹. He was succeeded in 238 by Balbinus and Pupienus, appointed emperors by the Senate⁷², who were eventually also killed by their soldiers. Gordian III, a young boy descended from the above Gordians, was finally proclaimed emperor during the same year⁷³.

Gordian's short reign was characterised by the invasions of the Goths, the Carpi⁷⁴ and the Persians⁷⁵ as well as the rebellion of Sabinianus in Africa⁷⁶. He inherited an unhappy empire but there are signs that he tried to improve the situation. For example, he tried to suppress informers⁷⁷ and he developed an interest in provincial administration⁷⁸, although none of these actions seemed to remedy the situation. The failure of his attempts is suggested by the existence of an inscription⁷⁹ from Scaptopara in Thrace (238 AD), which shows that its inhabitants were still

⁶⁶ Herodian 7.1.

⁶⁷ Herodian 7.8.8.

⁶⁸ Herodian 7.2; SHA, Max. 13; ILS 488-490.

⁶⁹ Herodian 7.1.

⁷⁰ Herodian 7.9.

⁷¹ Herodian 8.5; SHA, Max. 23.

⁷² Herodian 7.10; SHA, Gord. 8.

⁷³ Herodian 8.8.

⁷⁴ Peter Pat. Frag.8; SHA, Gord. 26, 34; IGR 1. 723-4.

⁷⁵ SHA, Gord. 13; Zosimus 1.18.

⁷⁶ SHA, Gord. 23; Zosimus 1.17.

⁷⁷ CJ 10.11.2-3.

⁷⁸ Redressing of provincial injustice, IGR 1.764. No official was allowed to lend money at interest in his own province, CJ 4.2.3.

⁷⁹ CIL, iii, 12336; Cagnat, IGRR, I, 674; Abbot, F.F. and Johnson, A.C., Municipal Administration in the Roman Empire, Princeton: Princeton University Press 1926, no. 139, pp. 467-473.

oppressed by soldiers and others. When, finally, they complained to the emperor it is not certain if their petition was successful or was undermined by the bureaucratic machine. The failure of his efforts should be attributed to the deteriorating political and military situation that was impossible to resolve.

Gordian was murdered in AD 244 and immediately replaced by Philip the Arab, another political figure who rose from the ranks⁸⁰. Although the initial act of his reign was the conclusion of an agreement with the Persians⁸¹, he could not avoid the attack of the Carpi and the Germans from the north⁸² and eventually also the Goths and the Vandals⁸³. Economic problems resulting from these wars did not prevent him celebrating the thousandth birthday of Rome with lavish games and handouts to the populace⁸⁴. The financial situation deteriorated even more when various usurpers, such as Silbanacus, Pacatianus and Iotapianus, attempted in vain to take Philip's place on the throne. Trajan Decius succeeded in AD 249 where the others had failed⁸⁵. Although he is mainly known for his empire wide persecution of the Christians⁸⁶ we should not forget that during his reign he also had to put down a civil war in Gaul⁸⁷ and to fight against the Goths⁸⁸, who invaded the Balkans, an action that resulted in his defeat and subsequent death. After this catastrophe the soldiers proclaimed Trebonianus Gallus emperor, who had to face a series of invasions. At that time the Persians overran Mesopotamia to Antioch and took Armenia⁸⁹, while the Goths crossed the Danube to plunder. Gallus made a treaty with the Goths allowing them to keep Roman prisoners and granting them tribute⁹⁰. Aemilius Aemilianus in 253 won a victory over the Goths and was acclaimed emperor, while Philip was alive. His reign, though, only lasted a few months⁹¹ and the death of Philip and his son that followed shortly afterwards left the empire once more in turmoil.

⁸⁰ York, J., 'The Image of Philip the Arab', *Historia* 21 (1972), pp. 320-332.

⁸¹ Zosimus 1.19.

⁸² Zosimus 1.20; IGR 4.635.

⁸³ Zosimus 1.20; Jordanes, *Gothic History* 89-92.

⁸⁴ SHA, Gord. 33.

⁸⁵ Zosimus 1.21-22.

⁸⁶ Eusebius HE 6.39ff.

⁸⁷ Eutropius 9.4.

⁸⁸ Jordanes 101-102; Zosimus 1.23.

⁸⁹ Zosimus 1.26-27; Zonaras 12.21.

⁹⁰ Zosimus 1.24.

⁹¹ Zosimus 1.28-29.

Aemilian was still alive when Valerian and his son Gallienus fought their way to the throne and kept it for almost 15 years. Although, this was the longest reign it was not enough to solve the problems that had accumulated for the past 50 years. During this period plague⁹² and civil strife raged within the provinces of the empire⁹³, while various enemies attacked the empire from the north and the east⁹⁴. Even the emperor Valerian himself was captured by the Persians and died in captivity; a defeat that probably was the ultimate moral blow against the Romans⁹⁵. The military and political crises of the reign were matched by a monetary and probably even economic situation that steadily approached complete catastrophe.

The provinces of Asia Minor and Syria had to face a series of political, military and natural disasters in the mid-third century that undoubtedly affected the economy of the area. Of major importance was the external threat of the Goths and the Sassanians. In the 250s and 260s for the first time the way lay open for the Gothic invasions. The barbarians were directed against the East end of the Black Sea: they pillaged Pityus and Trapezous⁹⁶, they attacked central and western Asia Minor, while they fell upon Bithynia and sacked most of its cities⁹⁷. A few years later, after attacking Chalkedon, they sailed onward through the Hellespont and ravaged the coast of the Aegean, where they plundered some of the cities of Ionia. Either at this time or soon afterwards, presumably by way of Pontus, they seem to have raided also Cappadocia and northern Galatia⁹⁸. During the same period an equal danger emerged in the south and east. Shapur I, the Sassanid king, dealt three devastating military blows to Rome between 240 and 260 AD. Every attempt on the part of the Romans to prevent the invasions proved to be hopeless. The Persians not only managed to attack and probably sack the city of Antioch for a brief span of time but they also led raids in

⁹² SHA, Gall. 5.

⁹³ Ingenuus in Pannonia: ILS 539; SHA 30. Postumus in Gaul, Spain and Britain: Zosimus 1.38; ILS 560f; CIL 2. 4943, 4919, 7.820. Regalianus on the Danube: SHA, Thirty 10; Eutropius 9.8. Macrianus and Quietus in the East: Zonaras 12.24; Pap.Oxyr. 1476. Mussius Aemilianus in Egypt: SHA 4.

⁹⁴ Germans: ILS 538. Goths: Zosimus 1.31-35. Persians capture Dura (archaeological evidence). Franks: Aurelius Victor 33.3. Marcomanni: Epitome 33.1. Alamanni: Zosimus 1.37; Zonaras 12.24. Persians: Ammianus 23.5.3; Zonaras 12.23; Zosimus 1.39. Goths: Aurelius Victor 33.3; Eutropius 9.8; Jordanes 107-109; SHA 6-7, 11-12, Dexippos, frag.28.

⁹⁵ Zosimus 1.36; Zonaras 12.23.

⁹⁶ Zosimus 1.31-3.

⁹⁷ Zosimus 1.34-36; Ammianus Marcellinus 31.5.16.

⁹⁸ Syncellus, 1.700 (Bonn).

Cilicia Pedias, the coast of Rugged Cilicia, Cappadocia, Pontus and Lycaonia after the death of the captive emperor, Valerian⁹⁹.

Brigandage was another nemesis for the inhabitants of Asia Minor¹⁰⁰. Mountainous regions seem not to have been completely Romanised or even Hellenised. According to Justinian¹⁰¹, the province of Pisidia had to be entrusted to a governor of higher rank because the small cities in this area were reluctant to pay taxes, and the inhabitants of the villages often turned to brigandage. The political instability of the third century could have had similar effects. The Roman State was forced to treat them not as mere criminals but as public enemies. In consequence, they were suppressed by the army and not by the local police¹⁰². As for the army, it was not always a force for peace and prosperity, since pillage and extortion by soldiers is repeatedly attested in our sources¹⁰³. Asia Minor as well as Greece was reverting to a condition of anarchy that had not been known since the first century BC.

The fights of usurpers for the Roman throne repeatedly shook the provinces of Asia Minor. The exactions of Philip's brother, Priscus, who had been given extraordinary powers with the title of *Rector Orientis*, caused such discontent that a certain Iotapianus declared himself emperor in the East. During the reign of Decius, Lucius Julius Aurelius Sulpicius Uranus Antoninus proclaimed himself emperor at Emesa in Syria. Later, Marcus Aemilius Aemilianus successfully conducted an expedition against the Goths and consequently also was acclaimed emperor and received recognition in a few cities of Asia Minor. During the reign of Gallienus, Callistus, after his success against the Persians, had joined forces with Macrianus in 260 in Syria. The two leaders proclaimed as Augusti Macrianus' two sons, Titus Fulvius Junius Macrianus and Titus Fulvius Junius Quietus, doubtless intending themselves to be the power behind the throne¹⁰⁴.

Furthermore, the effects of catastrophic earthquakes were also felt in the area. A disastrous earthquake occurred during the reign of Maximinus and affected the

⁹⁹ For more details see: Mitchell, S., *Anatolia: Land, Men, and Gods*, I, Oxford: Clarendon Press 1993, p. 237.

¹⁰⁰ Mitchell, S., *Cremna in Pisidia: An Ancient City in Peace and in War*, London: Duckworth 1995, pp. 211-213; Hopwood, K.R., 'Policing the hinterland', in S. Mitchell (ed.), *Armies and Frontiers in Roman and Byzantine Anatolia*, Proceedings of a Colloquium held at University College, Swansea, April 1981, BAR International Series 156, Oxford 1983, pp. 173-187.

¹⁰¹ Justinian, Nov. 24.

¹⁰² Mitchell, *Anatolia*, p.234.

¹⁰³ Ibid. note 78.

provinces of Pontus and Cappadocia¹⁰⁵, while another one took place in Aphrodisias during the reign of Gordian¹⁰⁶. A third earthquake occurred, according to the *Historia Augusta*, somewhere in Asia Minor during the reign of Gallienus¹⁰⁷. In these cases either the emperor or private benefactors undertook the task of the restoration of the cities that were severely damaged.

We should also try to identify the reasons for the higher concentration of coins issued during the reigns immediately before the burial of the hoards. It seems that repeated debasements were responsible for the relatively low representation of earlier coins into Military Anarchy hoards. In their struggle to find more coins in order to pay the expenses for their military campaigns, Roman emperors kept melting down and re-coining the older silver coins of higher fineness into new debased ones. In some cases older coinage probably disappeared completely from the circulation pool. This is probably one of the causes for the absence of silver hoards lost during the Severan period in the provinces of Achaia and Macedonia¹⁰⁸. Emperors of the Military Anarchy period tried to take advantage of the difference between their debased coinages in relation to the Severan silver coins, as soon as possible.

The political and military orientation of the Roman emperors, who reigned during the third century, affected both their financial policy and eventually the monetary economy. They continuously tried to increase mint output in order to pay for their excessive lifestyles and their military campaigns. Changes in the volume of coinage inevitably affected the fineness and weight standards of the coins themselves. The manipulation of gold and silver coinage during the third century became a standard procedure that allowed emperors to pay for their excessive expenditures. I will try to describe these reforms and their effects in the following section.

¹⁰⁴ Ibid. note 89.

¹⁰⁵ Cypr. Ep. 75.10.1.

¹⁰⁶ SHA, Gordian 26.1.

¹⁰⁷ SHA, Gallienus 5. 2-6; For further bibliography: Guidoboni, E., et al., Catalogue of Ancient Earthquakes in the Mediterranean Area up to the 10th century, Rome: Istituto nazionale di geofisica 1994, pp.239-243.

¹⁰⁸ See above, for the lack of hoards.

EFFECTS ON SILVER COINAGE

When Commodus was murdered the denominations of the Augustan system were all still there. The *aureus* was still worth 25 *denarii*, the *denarius* was still worth 4 *sestertii*, 8 *dupondii* or 16 *asses*, although the weight of all denominations was eventually reduced and the amount of silver in the *denarius* was decreased. Adjustments in the fineness of silver coinage throughout the first two centuries were not fundamental and they did not alter radically the monetary system.

On the contrary, the Severan period is especially interesting from a monetary point of view. It seems that the first most important numismatic changes that characterised the rest of the third century and led to the collapse of the whole monetary system took place during this era. Although, we do not know if these monetary changes were ordered by the emperor himself or his advisors, we may be certain that they were connected with the increased need for coined metal throughout the third century. As we have seen, imperial expenditure for the Roman army increased considerably and the mint of Rome struggled to cope with the urgent necessity for new issues. The total increase of the volume of precious metal coins in the Roman Treasury would normally burden the inhabitants of the empire with taxes or it would cause the exhaustion of the imperial mines. New taxes were probably the cause for alarm among the upper classes as well as the poor inhabitants of the provinces. On the other hand, the lack of literary, epigraphic or archaeological information on silver mines do not allow us to decide whether they still produced the same amount of bullion as before or if they were becoming exhausted. The only sensible solution seemed to be repeated re-coinages and the manipulation of coinage.

Such a resolution had been tried even before the Severan period. The emperors could 'call back' coins of higher fineness, so that they may re-issue them on a debased standard. The debasement of coinage for a short period of time provided an increased supply of coins and at the same time it did not result in the instability of the monetary system. The first reform after the imposition of the system by Augustus, took place during the reign of Nero. Although the success of Nero's changes was doubtful, some emperors followed his example before and surely after the reign of Septimius Severus.

Septimius Severus alloyed the *denarius* in order to produce more coins so that he would be able to pay for his wars and elaborate buildings. The clear intention of Septimius Severus to increase the production of coins in order to use them for political or military purposes is indicated also by his exceptionally generous largesses¹⁰⁹. The *denarius* continued to move downwards in silver content until its fineness was gradually reduced from 65% in AD 194 to about 50 % in AD 197-8, although the weight might have been improved slightly¹¹⁰. Therefore, I would suggest that the percentage of the debasement of the silver coinage was possibly relevant to the increase in the imperial expenses, the bulk of which were directed towards the army. The hoards cannot help us estimate the exact number but they definitely suggest a radical increase of mint output, which should have been relevant to the degree of the debasement of the coins.

The same need in the early third century urged Caracalla to introduce a new silver denomination termed for the first time in the *Historia Augusta* as *antoninianus*¹¹¹. The purpose for this introduction was mostly practical since its commercial value remained higher than its real one. There is dispute as to the value of the new denomination¹¹², which according to its weight it should be regarded as 1 ½ *denarii*. However, the coin is marked by a portrait with a radiate crown allowing us to believe that it was accepted as a double piece¹¹³. Even after the introduction of the *antoninianus* by Caracalla in 215, the *denarius* continued to be the basic silver denomination until AD 238. During the Severan period after the death of Caracalla, Macrinus and Elagabalus issued *antoniniani* only in the first months of their reigns. These issues were abandoned in 219 and did not reappear until the reintroduction of *antoninianus* by Balbinus and Pupienus in 238 at a reduced weight of 4,75 gr., as an

¹⁰⁹ Dio, LXXVII, 1, 1-2: S. Severus in 202 AD, 'On the occasion of the tenth anniversary of his coming to power Severus presented to the entire populace that received the grain dole and to the soldiers of the praetorian guard gold pieces equal in number to the years of his reign. He prided himself especially of this largess, and, in fact, no emperor had ever before given so much to the whole population at once; the total amount spent for the purpose was 200 million sesterces'.

¹¹⁰ For mean weight of silver in silver coins from the reign of Septimius Severus until the reign of Aemilian see: Walker, D.R., *The Metrology of the Roman Silver Coinage*, Pertinax to Uranus Antoninus, III, BAR Suppl. Ser. 40, Oxford 1978, pp. 49-50. Walker's results have been corrected by Butcher, K. and M. Ponting, 'A study of the chemical composition of Roman silver coinage, AD 196-197', *American Journal of Numismatics* 9 (1997), pp. 17-36.

¹¹¹ SHA 28.15.8 *argentei Antoniniani*.

¹¹² For evidence from Roman Palestine see Sperber, D., *Roman Palestine, AD 200-400. Money and Prices*, Ramat-Gan: Bar Ilan University Press 1974, pp. 38-46.

¹¹³ Bastien, P., *Le buste monétaire des empereurs romains. Numismatique Romaine XIX*, I, Wetteren: Numismatique Romaine 1992, pp. 107-8.

attempt to ameliorate the finances of the State even at the expense of stable coinage¹¹⁴.

The production and circulation of *antoniniani* in the Roman provinces seem to have been rather small, at least, until the reign of Gordian III. Specifically, only the Turkey Hoard contains exclusively *antoniniani*. A very small percentage of *antoniniani* is also included in the Sulakyurt Hoard. Both of them were lost at the end of the Severan period or later. It seems that the emperors during the early third century did not want to cause any instabilities in the current monetary system with the introduction of a new silver denomination that obviously was highly debased. Caracalla's attempt to introduce the new coin was of a temporary nature and was not continued by the rest of the Severan emperors in large scale. The actual imposition of the *antoninianus* in the empire probably took place during the period of Military Anarchy, when the need for more coins increased rapidly.

The Military emperors debased the silver currency even further and raised new taxes. As we have already seen, the crisis was not temporary any more. In order to acquire the money that would allow the continuation of these wars each emperor lowered the purity of the *antoninianus* and thereby condemned the silver coins of his predecessor to the melting pot. This period is characterised by monetary changes both in weight standards and particularly in fineness standards, although the coins' face value probably did not alter with the same speed. From the reign of Gordian III onward the *antoninianus* replaced the *denarius* as the standard silver coin. Seven hoards that were lost in Asia Minor during the period of Military Anarchy have been studied, of which four – Smyrna, Western Turkey 1, Western Turkey 2 and Caesarea Cappadociae hoards- contain mostly *antoniniani* (only a few *denarii* of the Severan period are included), while two – Haydere [chart 26], Pergamos [chart 27],¹¹⁵ hoards- contain both *denarii* and *antoniniani*. The coins of Haydere and Pergamos hoards have been positively identified; therefore it could be useful to analyse them statistically and see how many coins come from separate reigns and of which denomination. The Haydere Hoard includes coins that were minted during the second and third centuries, and was lost possibly during the reign of Gallienus. We observe

¹¹⁴ Carson, *Coins of the Roman Empire*, pp. 232 and 234.

¹¹⁵ There are a lot of coins in Goktepe hoard, whose denomination has not been identified. It seems, though, that there are no *antoniniani* from the period before the reign of Gordian III.

that there is an even distribution of *denarii* until the reign of Gordian III, after which *denarii* vanish. An especially high peak of *antoniniani* from the reign of Gordian III until the reign of Trajan Decius indicates an equally high volume in the production of this denomination. The number of *antoniniani* decreases only during the reigns of Trebonianus Gallus, Valerian and Gallienus. The Pergamos Hoard demonstrates a gradual increase in the number of *antoniniani* from the reign of Gordian III until the reign of Trajan Decius and a gradual decline from Trebonianus Gallus onward. The number of *denarii* in this hoard is rather small.

The gradual decrease of the volume of *denarii* in circulation and increase of the *antoniniani* from the reign of Gordian III until the reign of Trajan Decius is demonstrated by the coin finds that come from local museums, such as Yiannena, Volos, Eireniko (Kilkis), Fethiye, Sinop and Afyon. [charts 28-33]. The peaks and troughs of *antoniniani* from these museums vary from one area to another. There are, though, certain similarities: a) the first substantial increase took place during the reign of Gordian III (apart from Sinop) and b) gradual decreases occurred during different reigns afterwards. A recent research project concerning hoards that came from the western and northern provinces of the empire shows the same results. The hoards show how the *denarii* progressively disappeared from circulation during the period between 240 and 274, although the rate of disappearance is uneven between different provinces¹¹⁶.

The fineness and weight of the *antoninianus* did not remain stable throughout the third century. The fineness of the *antoninianus* of the latest coinage of Trajan Decius was about 40%, but from this period onwards the debasement became more rapid until its fineness fell to 5% in the issues of about 266 AD. By the end of the reign of Gallienus fineness had fallen to about 2,5 %, a figure suggesting a ratio of 800 *antoniniani* to the *aureus*¹¹⁷. It is possible that the slight raising of the fineness standards towards the end of Gallienus reign foreshadowed further intentions of improvement. In the actual event, however, it was Claudius' misfortune to have taken the imperial *antoninianus* to its absolute nadir in intrinsic worth, and to be prevented,

¹¹⁶ Bland, R., 'The development of gold and silver coin denominations, AD 193-253', in C.E. King and D.G. Wigg (eds.), *Coin Finds and Coin Use in the Roman World, The thirteenth Oxford Symposium on Coinage and Monetary History 25.-27. 3. 1993*, Berlin: Mann 1996, pp. 63-100, esp. pp. 78-79.

¹¹⁷ Carson, *Coins of the Roman Empire*, p.234.

by untimely death, from raising the standard by more than a small step towards the superior heights, which were attained later¹¹⁸.

All these monetary changes undoubtedly affected also the circulation of coinage beyond the northern frontier. According to L. Lind hoards that were lost in Eastern Europe¹¹⁹ demonstrate that *denarii* from the period before the great debasement of Septimius Severus were at hand in the 220s and later (although, coin hoards from Greece and Asia Minor do not verify such a conclusion apart from exceptional cases, such as the Haydere Hoard). Their general chronological distribution was compatible with that of the *denarii* of the hoards of the Barbarian world¹²⁰, which almost exclusively consist of pre-debasement coins. The pre-debasement coins of these hoards include mostly coins of Hadrian, Antoninus Pius and Marcus Aurelius as well as fewer coins from the reigns of Trajan and Commodus, although most of the hoards probably were lost a long time after the reign of Septimius Severus¹²¹. Incidentally, the stray finds of silver coins reflect the same chronological spread as the *denarii* in the hoards. From the reign of Septimius Severus onwards, there is a considerable decrease in the number of silver coin finds, especially compared with the number of finds from the empire¹²². This phenomenon indicates that debased Roman silver coins were not accepted in areas where the Roman State could not guarantee its value, such as the *Barbaricum*. The system could work within the borders of the Roman empire because it was based on the trust of the population and the reassurance of the powerful Roman State.

All things considered, the reforms of the monetary system started as early as the reign of Septimius Severus and were completed after the middle of the third century. The need of the emperors to pay for their expenses prompted the

¹¹⁸ Cope, L.H., 'The Nadir of the Imperial Antoninianus in the Reign of Claudius II Gothicus, AD 268-270', *Numismatic Chronicle*, 7th ser., IX (1969), p.161.

¹¹⁹ These hoards are the huge Reka Devnia (Moucmov 1934) find from Bulgaria, the find of Viuz-Faverges (Pflaum and Huvelin 1981) in France, that of Cologne (FMRD 6, no. 1004,3) and of Kempten (FMRD I no. 7186) in the southern parts of FRG.

¹²⁰ Hoards found outside the limes, i.e. Lind, 1981, no.62, from Gotland and no. 279 from Poland.

¹²¹ Lind, L., 'The Monetary Reforms of Nero, Domitian and Septimus Severus and the Finds of Roman Denarii in Eastern and Northern Europe', in T. Hackens, G. Moucharte et al. (eds.), *Proceedings of the XIth International Numismatic Congress, Brussels, September 8th-13th 1991*, Louvain-la-Neuve 1993, pp. 289-295, esp. pp. 292-3.

introduction of the *antoninianus* and the repeated debasements and continuous decline of fineness of both *denarii* and *antoniniani*. Eventually (during the reign of Gordian III) the *antoninianus* replaced the *denarius* in circulation. The inhabitants of the empire continued to use silver coins at the rate set by the Roman State during the third century, unlike the inhabitants of the *Barbaricum*, who preferred Antonine silver coins of higher fineness.

EFFECTS ON GOLD COINAGE

Undoubtedly, the political and military turmoil, the need of the State for new revenues and the changes in the weight-standards of silver coinage could not have left gold coinage unaffected. Circulation patterns changed radically during the third century in every province. In the eastern provinces, Syria, Greece and Asia Minor we encounter no known gold coin hoards from the Severan and the Military Anarchy period¹²³. The pattern varies slightly in the western provinces due to extensive excavations and publications. A few stray finds have been published, which indicate the decline of the circulation of gold coinage within the empire –except in Noricum and the two Pannonias-¹²⁴, in comparison with the first and second centuries AD. The

¹²² Berger, F., 'Roman coins beyond the northern frontiers: some recent considerations', in C.E. King and D.G. Wigg, *Coin Finds and Coin Use in the Roman World: The thirteenth Oxford Symposium on Coinage and Monetary History* 25. – 27. 3. 1993, Berlin: Mann 1996, pp. 55-61, esp. p.57.

¹²³ Turkey 2, Troy 2 and Kusakkaya gold hoards are dated to the Antonine period.

¹²⁴ King, C.E., 'The role of gold in the later third century AD', *Rivista Italiana di Numismatica* 95 (1993), pp. 439-451, esp. p. 443, table no. 2. These results are based on the following publications: Callu, J.-P. and Lorient, X., 'L' or monnaie', in C. Brenot and X. Lorient (eds.), *L' or monnaie III. Trouvailles de monnaies d' or dans l' occident romain. Cahiers Ernest-Babelon*, 4, Paris: Centre National de la Recherche Scientifique 1992, pp. 21-32, esp. 26-27; Bost J.-P., Campo, M., Gurt, J.-M., 'Hallazgos de aurei y solidi en la Peninsula Iberica: introduccion a su circulacion en epoca imperial', *Numisma* 33 (1983) pp. 137-176, esp. pp. 140-141; Bost, J.-P., Campo, M., Gurt, J.-M., 'Trouvailles d' aurei et de solidi dans la peninsule iberique', in C. Brenot and X. Lorient (eds.), *L' or monnaie III. Trouvailles de monnaies d' or dans l' occident romain. Cahiers Ernest-Babelon*, 4, Paris: Centre National de la Recherche Scientifique 1992, pp. 33-89; Lorient, X., 'Trouvailles isolées de monnaies d' or romaines dans la province de Retie', in P. Kos and Z. Demo (eds.), *Studia Numismatica Labacensia Alexandro Jelocnik Oblata*, Ljubljana 1988, pp. 53-998, esp. pp. 64-66. More detailed analysis by Bland, Gold and silver, p. 81, table 1, where the number of stray finds from the western provinces has been estimated per year. He uses the numismatic data from the following publications: Callu, J.P. and X. Lorient., *L' or monnaie II. La dispersion des aurei en Gaule romaine sous l' empire. Cahiers Ernest-Babelon* 3, Paris: Centre National de la Recherche Scientifique 1990; Brenot, C. and X. Lorient (eds.), *L' or monnaie III. Trouvailles de monnaies d' or dans l' occident romain. Cahiers Ernest-Babelon*, 4, Paris: Centre National de la Recherche Scientifique 1992.

rare gold coin hoards that have been found contain also other denominations or even jewellery¹²⁵.

So far, no persuasive explanation for this phenomenon has been given. According to one hypothesis we could link the absence of gold coin hoards with an allegedly low mint output during the third century¹²⁶. The reasons for decreased production are two-fold: A) The purpose of warfare changed during the Principate, since emperors concentrated their efforts on defending the existing frontiers instead of expanding them. Defensive wars, though, did not bring enough profit or bullion that would allow an inevitable increase of revenues and a subsequent extensive mint activity. B) Mining was another practice connected with coin production that might have affected the circulation of gold. Although gold and silver mines were active in Spain during the first two centuries and they provided the central mint with the essential metals, mining in this area had ceased by the beginning of the third century¹²⁷. On the other hand, the province of Dacia was finally lost in AD 270 and its gold mines could not have been used by the Romans any more. There are no known sources, which indicate that new mines were in use until the fourth century AD.

The explanation of the lack of gold coin hoards that connects the phenomenon with a low mint output, although it is plausible and is based on common sense, cannot be conclusive because there is no direct evidence to support it. Maybe we should try to associate the absence of gold coins from circulation with the wider monetary reforms that took place after the reign of Septimius Severus, when the last known substantial gold coin hoards were lost.

We have already seen that silver coins were reduced both in weight and fineness during the third century AD. Although we should expect similar changes for the gold coinage, we do not observe analogous reductions in the weight or fineness of the *aureus*. The *aureus*, the gold denomination, that weighed the same for the first 20 years or so (except for the later coinage of Macrinus and early issues of Elagabalus)

¹²⁵ Huvelin, H. and Lorient, X., 'Les trouvailles de monnaies d'or dans l'occident romain au IIIe siècle de notre ère', in C. Brenot and X. Lorient, L'or monnaie III. Trouvailles de monnaies d'or dans l'occident romain. Cahiers Ernest-Babelon, 4, Paris: Centre National de la Recherche Scientifique 1992, pp.215-272.

¹²⁶ An attempt to prove this view was made by King., 'The role of gold in the later third century AD', pp. 449-450.

remained intact in order probably to maintain the stability of the monetary system. In fact Septimius Severus restored the *aureus*, which had been reduced in weight by his predecessor, to its full weight and he maintained it at 7.2 gr. down to 215 AD. Only from 238 until 268 AD did the *aureus* undergo a decline in weight, although its fineness did not diminish until the reign of Gallienus. When silver coins contained almost no silver at all, gold coins were retained in a comparatively higher fineness¹²⁸.

The *denarius* had been tarified at 25 to the *aureus* in the time of Augustus and remained the same. Since *denarii* had undergone significant reduction in weight and fineness, we can assume that the rate of the *denarius* to the *aureus* must have altered, although there is no adequate evidence to help us determine exactly when this alteration happened or its extent. The *denarius* by the time of Septimius Severus, should have been tarified at 50 to the *aureus* and by the time of Trajan Decius at 100 to the *aureus*, if rates were not fixed and they followed naturally the debasement of silver coinage. Our evidence does not show such a modification, at least until the reign of Severus Alexander. A familiar passage from Dio Cassius¹²⁹ informs us that a gold coin (*chrysous*) was still worth 25 *denarii* when he wrote his History. Such a statement would enable us to suggest that the exchange rate remained the same until the end of the Severan dynasty¹³⁰.

The financial behaviour of the State could be explained if we take into consideration the reason for the monetary reforms. First of all, the debasement of silver coinage was intended to cover the payment of the army that was increased during the reign of Septimius Severus. The soldiers would continue to trust the new coins, which contained less precious metal, mainly because they could exchange them with the same number of gold coins as before. The stable weight of gold coinage would guarantee the value of debased *denarii*.

During the reign of Septimius Severus a serious problem possibly originated from the alteration of the weight standards that was not followed by the natural adjustment of exchange rates. The overvaluation of *denarii* would probably cause the

¹²⁷ Domergue, C., *Les mines de la péninsule ibérique dans l'antiquité romaine*, Rome: Ecole française de Rome 1990, pp. 215-224.

¹²⁸ Bland, 'Gold and silver denominations', pp. 67-73.

¹²⁹ Dio 55.12.5.

devaluation of gold if the State insisted on sustaining the existing rates. If gold coins were undervalued, then gold bullion would have been valued at a higher price. The citizens would have been inclined to melt down the coins and use them as bullion that still retained its full value. So, they could 'buy' from the state gold coins at a lower price and then, by melting them down, they could get a better price if they were selling them as raw metal. The emperor, of course, should have been aware of the situation; therefore he probably arranged to withdraw the gold coins that were already in circulation. The obvious way of removal was through the process of taxation.

The artificial maintenance of exchange rates could not have lasted forever, because the coinage was based on a purely metallic system and not on the modern credit system. During the reign of Gallienus, the rates between gold and silver coins reached the point that characterised the rates between gold and bronze coins of a previous era. Actually, gold appears not to have been related any more to the lower denominations as part of a fixed monetary system. The changes probably occurred sometime between the reigns of Severus Alexander and Gallienus, although we cannot be certain of the exact date.

There is a possibility, though, that the undervaluation of gold coins was not entirely avoided. Archaeological finds that belong to the third century, such as mounted gold coins, may indicate that gold coins were used as bullion instead of money. In the West the finds are concentrated in the Lyonnais, while a number of them was found in the *barbaricum*. Although the practice of mounting can be dated to the third century, the coins themselves were issued between AD 96 and AD 235. The phenomenon ceased in the West with the fall of the Gallic empire, although it continued in the *barbaricum*.¹³¹

Another indication of the possible devaluation of gold coinage is an inscription from the middle of the third century, which indicates that it was an honour and a privilege for someone to get paid in gold coin (*aureus*)¹³². The State obviously avoided such payments apart from rare cases that were considered exceptional.

¹³⁰ Buttrely, T.V., 'Dio, Zonaras and the value of the Roman *aureus*', *Journal of Roman Studies* 51 (1961), pp. 40-45.

¹³¹ Brenot, C., Metzger, C., 'Trouvailles de bijoux monétaires dans l'occident romain', in C. Brenot and X. Loriot (eds.), *L'or monnaie III. Trouvailles de monnaies d'or dans l'occident romain au IIIe siècle de notre ère*, *Cahiers Ernest-Babelon*, 4, Paris: Centre National de la Recherche Scientifique 1992, pp. 315-371.

¹³² CIL xiii, 3162.

On the whole, it seems that the Roman State used the gold denominations in order to guarantee the value of debased silver coins; therefore gold coins were not debased as much as the *denarius*, and their rate of exchange remained the same, at least during the Severan period. If this situation continued, then the overvaluation of *denarii* would probably cause the devaluation of gold and its withdrawal from circulation (a result that may not have been avoided completely). The State probably reduced the volume of *aurei* in circulation, while the citizens considered it a privilege to own some of them. Tendencies towards the devaluation of gold probably eventually forced the emperors to change their policy and adjust the exchange rates.

INFLATION AND MONETIZATION

It is natural to wonder whether the above monetary changes caused any wider effects on the Roman economy. In fact, most researchers used to favour the hypothesis that inflation rose abruptly at some point between the reign of Septimius Severus and the reign of Diocletian¹³³. A strong indication for such a theory was the Price Edict, an inscription that belongs to the Diocletianic period and regulated the prices that seemed to have increased substantially during the previous century. Other researchers tried to prove that monetary reforms did not cause any inflationary tendencies and they suggested that prices did not increase substantially while inflation remained insignificant until the beginning of the fourth century¹³⁴. On the other hand, Duncan-Jones accepts an inflation of 0,61-0,83% per year for the second century in the Roman empire¹³⁵, a percentage that indicates that inflationary tendencies existed even before the monetary reforms of the third century.

An important project by Dominic Rathbone that was published in 1996 demonstrated that prices in Egypt did not rise substantially until the reign of Aurelian¹³⁶. A second article by the same writer that based his research on wheat,

¹³³ Walker, *The Metrology of Roman Silver*, III, p. 140; Crawford, M.H., 'Finance, coinage and money from the Sevrans to Constantine', in H. Temporini (ed.), *Aufstieg und Niedergang der römischen Welt*, II, Berlin: de Gruyter 1975, pp. 560-593, esp. pp.590-1.

¹³⁴ Corbier, M., 'Devaluations et evolution des prix', *Revue Numismatique* 27 (1985), pp. 69-106.

¹³⁵ Duncan-Jones, *Money and Government in the Roman Empire*, Cambridge: Cambridge University Press 1994, pp. 25-28.

¹³⁶ Rathbone, D., 'Monetization, not price-inflation, in third century A.D. Egypt?', in C.E. King and D.G. Wigg (eds.), *Coin Finds and Coin Use in the Roman World: The Thirteenth Oxford Symposium on Coinage and Monetary History, 25.-27.3.1993*, Berlin: Mann 1996, pp.321- 339.

wine¹³⁷ and donkey prices indicated the same phenomenon¹³⁸. The author tried to explain this stability by assuming that the degree of monetization in Egypt rose during the third century and absorbed the cumulatively increasing stock of coinage in circulation without causing price inflation. Although his theory sounds plausible, we should look also for other explanations that would elucidate the steadily increasing prices until Aurelian, when they rose abruptly.

On the other hand, Elio Lo Cascio criticises the researchers, who suggested that inflation was negligible until the end of the third century; he argues that prices remained comparatively stable until the mid-third century and he attributes the incident to the stable exchange rates that were imposed by the State¹³⁹. Supposedly the exchange rates between gold, silver and bronze coinage remained unaffected, therefore the prices did not need to change, as long as the Romans accepted the existing monetary system. Only when the rates altered during the reigns of Claudius and Tacitus did the prices in gold suddenly increase.

The above hypotheses determines that a substantial increase took place some time after the mid-third century in prices but this phenomenon cannot prove by itself a respective increase in inflation, an economic expression that characterises mostly modern economies based either on representative or credit money. Inflation is the general and continuous rise in the prices of goods, services and factors of production. (Temporary rises in prices should not be regarded as inflationary.) Inflation in modern society is caused when a) the aggregate demand or total demand for goods and services by a society is greater than the amount which it is capable of producing at full employment, or when b) sellers and producers of goods and services who have significant market power raise their prices to an extent justified by the level of aggregate demand or economic activity. In order to control inflation the monetary authorities try to reduce the money supply or at least prevent it from growing too

¹³⁷ For example, from the mid-first century AD to the mid-second century most prices fall within a range of 3 to 8 dr. per keraion, while from around 190 to 270 most fall within 8 to 20 dr. Although such an increase reaches the number of 100% it is still small compared to the increase that took place after 270, in Rathbone, Prices and price formation, p. 200.

¹³⁸ Rathbone, D., 'Prices and price formation in Roman Egypt', in J. Andraeu, P. Briant and R. Descat (eds.), Economie antique: Prix et formation des prix les économies antiques, Entretiens d'archaeologie et d'histoire, Saint- Bertrand-de-Comminges 1997, pp. 183-244.

¹³⁹ Lo Cascio, E., 'Prezzi in oro e prezzi in unita di conto tra il III e il IV sec. d.C.', in J. Andraeu, P. Briant and R. Descat (eds.), Economie antique: Prix et formation des prix les économies antiques, Entretiens d'archaeologie et d'histoire, Saint- Bertrand-de-Comminges 1997, pp. 161-182.

rapidly, by decreasing the issue of currency in circulation¹⁴⁰. Internally inflation has the following disadvantages: a) It redistributes income arbitrarily (benefiting debtors and penalising lenders), b) Interest rates rise because people require a higher reward for lending money, c) Investment is discouraged by government anti-inflation policy (imposing control on prices), d) It tends to discourage saving, for postponement of consumption simply means that goods cost more later on, e) Workers demand higher wages, f) There is always the possibility of higher inflation and the subsequent collapse of the currency system¹⁴¹.

We should always have in mind, though, that ancient economic systems relied on the value of the intrinsic metal of the coin instead of credit. Therefore we cannot expect all of the above characteristics of modern inflation to apply in the economic structure of an ancient society. In fact, we should be very careful when we use the term 'inflation', because of the different nature of the monetary economy in the ancient world. It seems that, during the Principate, the nominal value of a coin (silver or gold) was defined by the value of the metal inside it. 'Inflation' would probably take place only if the Roman state guaranteed the nominal value of coins that did not coincide with their real value. It is true that the emperors tried to reduce the silver in the coins without changing their nominal value, a fact that might indicate a turning towards a 'credit' economy. It seems, though, that the people were not ready to accept such innovations and finally the monetary system collapsed.

Of course we cannot rule out the increase of prices¹⁴² after the middle of the third century. Every transaction would probably demand more coins at hand, since the metal in the coinage was reduced. Even if the exchange rates remained stable for a few years, eventually people would demand more coins for the same services as before. Although they needed more coins e.g. to buy a loaf of bread, in fact the amount of silver that they exchanged remained the same. Therefore we may observe price increases, increases of coin output in circulation as well as increased 'inflation' that should be considered as a reasonable effect of the repeated debasements of silver coinage. Since debasements took place in regular phases (more or less intensely) then

¹⁴⁰ Chen, E.K.Y., Jao, Y.C., *Introduction to Modern Economics*, 2nd ed., Hong Kong: The MacMillan Press 1985, pp. 230, 234-237 and 243-244.

¹⁴¹ Harvey, J., *Modern Economics: An Introduction for Business and Professional Students*, 3rd ed., London: The MacMillan Press 1977, pp. 417-418.

¹⁴² Dominique Rathbone indicated that prices increased in Egypt. See above, notes. 135 and 136.

the price increases also happened some time after the currency reforms. Only when the monetary system collapsed after the reign of Gallienus prices stopped increasing in a regular way and they rose uncontrollably.

The increased volume of coinage in circulation could also give the false impression of increasing monetization. There is no reason to believe that people decided to use silver and gold coins on more occasions during the third century, a period that is characterised by repeated debasements of precious metal coinage. In fact, someone would expect the opposite behaviour, since the manipulation of currency could have triggered general distrust towards State coinage especially after the end of the Severan dynasty. People did not trust any more the coins in circulation, since their content changed fast. Concerning the gold and silver coins that until then facilitated major economic transactions, neither inscriptions nor literary evidence seem to indicate a higher degree of monetization. Another sign of the distrust of the people towards the official currency is attested in a papyrus from the mid-third century, according to which the bankers refused to exchange coins and they closed the banks. Such conduct could be explained if we take into consideration the steady deterioration of the fineness of precious metal coinage and the loss of intrinsic value of the coins¹⁴³.

The reluctance in using official coins does not necessarily mean that the empire became under-monetized during the third century. It is probable that different metals were used for different purposes. For example, gold and silver coinage could not facilitate any more major economic transactions; therefore the use of bullion in some cases became imperative. *Antoniniani*, though, still remained in circulation, a fact that allows us to assume that they were used in retail transactions instead of bronze coins¹⁴⁴. It is important also to remember that bronze civic issues were not a source of profit for the cities any more, so eventually the authorities had to stop their production by the middle of the third century¹⁴⁵. If we keep in mind that the role of the coinage changed because of the monetary reforms, it will not be difficult to see that everyday life continued as it was until 270 AD.

¹⁴³ P. Oxy. XII, 141.

¹⁴⁴ See chapter 5, for the use of *antoniniani*.

¹⁴⁵ See chapter 5, for profitability of bronze coinage.

CONCLUSIONS

We have seen that coin hoards and excavation finds indicate an increase in the production of coinage during the third century AD. Peaks of coinage characterise the reigns of Septimius Severus and Caracalla, and the reigns of the Military emperors from Gordian III onward. Such an increase could only be connected with the demands of the soldiers for higher salaries, the explosive situation that was created by civil wars and in general with the extravagant expenses of the emperors. Instead of imposing new taxes and creating additional discontent among their subjects, the emperors resorted to the production of new silver coinage.

The increase in the volume of coins in circulation was accompanied by monetary reforms. The State probably decided to manipulate the weight standards and the fineness of the coins in order to profit from the overvaluation. Repeated debasements of the silver coinages started during the reign of Septimius Severus and continued throughout the Severan and Military Anarchy period. Furthermore, Caracalla introduced a new silver coin, the *antoninianus*, accepted as two *denarii*, although according to its weight it should have been regarded as 1½ *denarii*. *Antoniniani* eventually replaced *denarii* in circulation.

The apparent solidity of the Roman bureaucratic system probably allowed the maintenance of exchange rates for some time after these reforms took place. The reluctance of the emperors to change the weight standards of the gold pieces contributed to the preservation of the monetary system. Fine *aurei* guaranteed the nominal value of debased silver coins, regardless of the political and military instability.

The situation did not last beyond the middle of the third century. Eventually the monetary system collapsed and the silver coins were devalued at a point when they could have been used only in place of bronzes. It is not certain whether this situation caused any inflationary tendencies or variations in the degree of monetization. Increases in prices have been attested, but these just verify the fact that the silver content of the coins was reduced; therefore larger numbers of silver pieces were necessary for the same transactions. On the other hand, there is no definite evidence that prove that the use of money became more widespread.

SPATIAL DISTRIBUTION OF BRONZE COINS

INTRODUCTION

In the previous chapters we had the opportunity to study the production, supply and distribution of silver coinage throughout the Eastern part of the Roman Empire. The circulation of precious metal coinage seemed to be connected with the political, military and monetary policy of the emperor that affected both the East and the West in terms of social and economic development. It has already been suggested that monetary reforms concerning the silver coinage followed major events that eventually changed the financial policy of the emperor. All these changes (economic or other) obviously had also the power to determine the circulation of bronze coinage and its distribution in the provinces during the Principate.

The study of bronze coins circulating in the cities of the Eastern Mediterranean has been neglected for many decades probably because of the low value of the coins themselves or their poor condition or the complications that arise from their statistical analysis. Only during the past two decades has the study of bronze currency been intensified thus allowing us to reach plausible conclusions regarding the circulation and production of small denominations. Although there are still methodological problems, it is imperative to try to evaluate the role of bronze coins in the development of the monetary economy of the Roman Empire, since they were the means of daily transactions that defined the economic lives of all the inhabitants immaterially of the social strata in which they belonged. These transactions would take place either in the city or in the countryside and engaged a large number of the local population. The worn condition of the bronze coins found in excavations (in market places) or hoards could suggest that they were changing hands far more often than the silver and gold coins that could have been immobilized in hoards for a long time until their owner decided to use them in a major transaction.

In this chapter I will try to analyze statistical data from excavation sites, local museums and a few coin hoards, which could indicate differences as well as similarities between regions or even cities in the pattern of the circulation of bronze. Our evidence comes from the wider area of Greece, Asia Minor and Syria during the second and the first half of the third century AD. Although these differences could be triggered by individual local economic circumstances, I do not intend to study each

case separately because of the vastness of the material. I am interested, first of all, in the general factors that tended to affect wider areas on a different scale in each case and, secondly, on the way we should assess their effect. Such factors could be the organization and the administration of different mints or the movements of large parts of the population such as the army or traders. Although the effect of these dynamics cannot be estimated exactly because of the lack of accurate numerical data, I intend to give an approximate evaluation of the role of each factor.

NUMISMATIC EVIDENCE

The number of mints that were intermittently active throughout the Roman Empire, more than 530¹, created a mosaic of different circulation pools. The coins that emanated from the local mints of the Balkans, Asia Minor and Syria were referred to until recently as 'Greek Imperials'. Recently another general term has become customary, a term that I intend to use in my thesis: 'Roman Provincial Coinage'. Since this term is wide and covers all types of coinages, modern researchers have decided to divide local coinages further in two distinct categories according to their types: a) 'the portrait issues' that normally have a portrait of the emperor with his name and titles on the obverse, and a type usually of local significance on the reverse and b) 'pseudo-autonomous' series which lack a portrait of a member of the imperial family on the obverse². The latter were called initially 'pseudo-autonomous' because supposedly they were issued by cities of different political status. Since it has been pointed out by A. Burnett that the varying status of Greek cities had no definite effect on their coinage (both free and stipendiary cities produced coinage)³, another term was suggested: 'issues without imperial portrait'. Although these coins are numerous, the bulk of the coinage presents imperial portraits⁴.

¹ For a list of civic mints in different provinces see Jones, T.B., 'Greek Imperial coins', *The Voice of the Turtle* vol. 4, no. 12 (1965), pp. 295-301.

² Johnston, A., 'The so-called "pseudo-autonomous" Greek Imperials', *American Numismatic Society, Museum Notes* 30 (1985), pp. 89-112, esp. p. 89.

³ Burnett, A. – Amandry, M. – Ripolles, P.P., *Roman Provincial Coinage, From the Death of Ceasar to the Death of Vitellius*, I, London: British Museum Press / Paris: Bibliothèque Nationale 1992, p. 15.

⁴ Bellinger, A.R., 'Greek mints under the Roman empire', in R.A.G. Carson and C.H.V. Sutherland, *Essays in Roman Coinage Presented to Harold Mattingly*, London: Oxford University Press 1956, pp. 137-148, esp. p. 140.

In most cases the circulation of civic coinage was highly localized and bronzes did not cross the borders of the province of their issue. Only in a few instances was their circulation wider than expected, as it is indicated by bronze coins that were found in regions distant from the city where they were issued. We should always bear in mind that the movement of every individual coin from one area to another demanded the actual movement of different classes of people that carried them with them. Such movements will become apparent in the following tables that describe the circulation of coinage in different regions, Greece, Asia Minor and Syria.

First of all I would like to present the coins from the area of Greece, with which term I describe the regions of Peloponnese, Epirus, Ionian Islands, Cyclades and central Greece. It becomes obvious from the hoards Plakanida, Palaio and Nicopolis that were found in Epirus [Tables 1-3] that the only coins that circulated in the region were the ones that were minted in Nicopolis⁵. Epirus was characterized by a low degree of urbanization before as well as during the Roman Empire. In fact, Nicopolis and Vuthrotum, founded by the Romans were the only cities able to participate actively in the production of civic coinage. The rest of the hoards that come from Greece – Corinth 2 [Table 5], Sparta [Table 6], Eleusis [Table 7]- include mostly coins that were minted in a number of local Greek mints. The few coins from Rome and one coin from Macedonia in the Corinth 2 and Eleusis hoards are of minor importance. There are, though, two other hoards that are exceptional, Roufou A [Table 4] and Athens 1 hoard [Table 8], because they consist mostly of coins from the mint of Rome. It is not difficult to interpret this phenomenon since both hoards come from the famous harbors of Patras and Athens that every year attracted large numbers of merchants and other travelers, who possibly carried with them coins that were acquired in the context of different circulation pools. The Scarminga hoard [Table 20] contains only 46 *sestertii* that were minted in Rome.

Hoards from Macedonia – Koufalia [Table 9], Kilkis [Table 10], Leukochori [Table 11], Peristerona [Table 12], Amphipolis [Table 13], Serrai [Table 14], Macedonia 1 [Table 15], Macedonia 2 [Table 16], Sevaste 1 [Table 17], Sevaste 2 [Table 18], Methone [Table 19], Siderokastro [Table 21], Serrai 2 [Table 22], Strymon [Table 23], Macedonia 3 [Table 24] - present us with another restricted circulation pool. Most coins included in the above hoards come from the Macedonian

⁵ Καραμεσίνη-Οικονομίδου, Μ., Η νομισματοκοπία της Νικοπόλεως, Αθήνα 1974.

mints of Thessalonica, Pella, Edessa, Amphipolis, Stobi, Koinon Makedonon, Dion and Cassandreia, while only a few come from mainstream mints⁶. The representation of these mints is not the same in every hoard and it varies according to the period as well as the area in which the hoard was found.

The well-defined borders of the circulation pools do not seem to be as straightforward when we study excavation finds. On one hand, we should take into consideration the individual character of coin hoards, which belonged to one owner and were subjected to his unique (maybe) preferences. On the other hand, we should always have in mind that excavations produce larger numbers of coins that allow a higher degree of diversity among the finds and eventually are responsible for the multiplication of the exceptional cases. The large sample that we acquire from excavations could help us analyze with greater accuracy the characteristics of each circulation pool and notice differences between cities and other areas. Excavations in Thessaly [Table 25] revealed coins that belonged to different mints situated not only in Thessaly (Magnites, Koinon Thessalon) but also in Greece (Patras, Athens, Delphi, Corinth), Thrace (Marcianopolis, Thasos) and Rome. More restricted was the circulation in the area of Argos and Lechaion [Table 26]. Most of the coins were produced in Peloponnesian mints, while a few came from Ionia and Rome.

Systematic excavations in neighbouring Cenchreai [Table 27] and Corinth [Table 28] by the American School of Archaeology in Athens indicate that most of the coins that circulated in the area were produced in the local mint of Corinth, in Argos or in Rome. A substantial number of coins came also from other mints of Greece while fewer coins came from Asia Minor, Egypt, Syria and Macedonia. It is interesting to note that the finds from the period of Military Anarchy do not include any Greek coins. In this case we should take into consideration that excavation finds cannot give us the date when a coin is lost. Therefore it is probable that coins from the Severan period continued to circulate during the period of Military Anarchy. The same diversity of coins is apparent also in the excavations in Patras [Table 29]. Although most of the coins came from the mints of Patras, Corinth and Rome, there are also coins coming from various mints of Macedonia, Mysia, Pamphylia, Lydia, Cilicia, Aeolis and Egypt. Even greater diversity is attested in the pattern of coins from the excavations in the Agora of Athens [Table 30]. The mint of Athens was

⁶ Mainstream are the mints that issue 'official' coinage, eg. Rome, Antioch, Milan, Siscia.

particularly active during the Antonine period and the reign of Gallienus, thus producing the bulk of coins that circulated in the city. On the other hand, the strong representation of the mint of Rome among the coin finds is striking⁷. The rest of the coins come from all over the Roman world (Greece, Macedonia, Thessaly, Thrace, Crete, Egypt, Bithynia, Mysia, Troas, Aeolis, Ionia, Lydia, Phrygia, Pisidia, Pamphylia, Cilicia and Syria). The economic role of Corinth, Patras and Athens as important ports of Greece probably affected the character of the circulation of coinage in the immediate area. The fact that they probably welcomed thousands of travelers every year from distant parts of the empire had as a consequence a higher degree of diversity in the coinage that was exchanged in the market.

Excavation finds from Curium, Cyprus [Table 31] indicate that there is no pattern of similarity between this island and its surrounding regions. The bulk of coinage seems to have been produced in Cyprus and in Rome, while a few coins from Greece, Southern Asia Minor, Syria and Egypt were in circulation.

Stray coin finds from various museums present us with the same difficulties as excavation finds, since they cannot give us any information about the time that they were lost. Otherwise they are valuable evidence for the production of coinage, its volume and the characteristics of circulation pools over a wider period. The coins from the museum of Volos in Thessaly [Table 32] give us a different picture from that created by excavation finds. It seems that Thessalian coins circulated in the area in higher numbers, although the number of coins coming from Rome was still substantial. I also have to underline that there was an even larger number of civic coins in the museum that does not appear in this table because the coins were too corroded to be identified. I suspect the same happened during the rescue excavations in the course of which the coins of Table 25 were found. Archaeologists usually are not numismatists and they tend to list in their reports only the easily identifiable coins e.g. Roman Imperial. The structure of coins from the museum of Delphi [Table 33] clearly shows a substantial number of Roman Imperial coins in its catalogues. Even if we assume that a large number of corroded civic coins could not be identified, we still have to face the possibility that the circulation of coins from the mint of Rome was higher in this area. Coins from Delphi and neighbouring mints of Greece and Thessaly are also represented in small numbers.

⁷ See also Table 8 according to which Athens 1 Hoard consists mainly of coins from the mint of Rome.

The pattern of coins from the Byzantine Ephoria of Kavala [Table 34] and the Classical Ephoria of Komotene [Table 35], both of which conduct excavations in the area of ancient South Thrace, demonstrates an exceptionally high concentration of Roman Imperial coins in the area. Other bronze coins come from the mints of Thrace, Macedonia and Troas. The coins from the museum of Thessalonica [Table 36] verify the pattern demonstrated by the structure of coin hoards from the province of Macedonia. The majority of coins come from Macedonia itself, while only a few come from Rome, Thrace, Syria, Bithynia and the West.

Most of the coins in the museum of Yiannena [Table 37], Epirus, were produced in Nicopolis, although a large proportion was produced in the mint of Rome. Other mints that are represented are Troy, Pergamos and Thessalonica. The circulation of Cercyraian coins in the island of Corfu [Table 38] was also dominating, although we also find a substantial number of coins from Rome and fewer coins from mainland Greece, Thessaly, Bithynia and Egypt. The museums of Yiannena and Corfu demonstrate a high proportion of coinage minted in Rome, a phenomenon that could be explained if we take into consideration the fact that the region of North-Western Greece was closer to Italy than any other part of Greece and was obviously affected by the Italian circulation pool.

Finally Rhodes [Table 39] is a unique cosmopolitan island comparable to the cities of Athens and Ephesus. The coins that were found mostly in the course of excavations came from the mints of Rome, Ionia, Caria, Lydia, Phrygia, Pamphylia, Egypt and Syria. Unfortunately a large number of Rhodes coins could not be dated by reign because of the lack of publications on the subject. It is worth noticing, though, that they were minted during the Principate.

The bronze coin hoards that were found in southwestern Asia Minor could help us demonstrate the main characteristics of local circulation pools. The Troy 3 [Table 40] and Troy 4 [Table 41] hoards that were found in the homonymous city contain mainly coins minted in Alexandria Troas and only a handful coming from neighbouring provinces such as Thrace, Mysia, Lydia and Aeolis. The circulation of coinage in Cilicia is also highly localized. The Ayvagedigi [Table 42] and Cilicia [Table 43] hoards contain only coins that were minted in the province, while the Gulek Bogazi [Table 44] hoard, which was found on the Taurus Mountains, contains only coins from nearby Caesarea Cappadociae. The hoard of Cibyra [Table 45] demonstrates the same pattern since all of its coins were minted in the city of Cibyra.

As always, there are exceptions to the rule. First of all, the Lycia hoard consists mainly of coins minted in Rome (only one coin was minted in Patara). Secondly, the coins in the Pamphylia hoard come from a great variety of civic mints from different provinces of Asia Minor, Greece, Syria and Egypt, while surprisingly it does not contain any coins from the mint of Rome.

The coins from the excavations of Asia Minor are numerous and they could give us an accurate picture of the kind of coinage that circulated in different areas, although it is impossible to determine the chronological length of circulation. Most of the coins from Pergamos [Table 48] come from the mint of Pergamos itself, although a lot of coins during the period of Military Anarchy come from the mint of Rome. The mints of Aeolis, Paphlagonia and Lydia are also represented. The excavations of Ephesus [Table 49] revealed mostly coins from Ephesus or other mints of western Asia Minor. Coins coming from the other side of the Aegean were not found. The number of Asian mints represented among the finds increased during the period of Military Anarchy and the circulation pool became more diverse. During the same period the number of coins coming from the mint of Rome also increased, while the number of coins from Ephesus decreased substantially. The bulk of the coinage found in the excavations in Troy [Table 50] belongs to the mints of Troas (Ilium, Alexandreia Troas and Abydus) but there are also coins from neighbouring Mysia, Thrace, Lydia and distant Rome. At this point I would like to note that coins of Troy were found also in the excavations of southern Thrace, as already observed. The excavations in Aphrodisias [Table 51], although the list represents only a part of the coins currently to be found in the local museum, revealed a great number of coins minted in Aphrodisias itself. Fewer coins represent mints of Mysia, Ionia, Lydia, Phrygia, Pamphylia, Rome and the West. It seems that most of the coinage came from mints of nearby regions until the period of Military Anarchy, when civic issues came to an end and western mints undertook the central production of bronze coins. It should be noted that, although the above cities of western Asia Minor were renowned for their wealth and status, the localized circulation of bronze coins indicates that they attracted only local populations.

Another major city, Tarsus [Table 54], presents us mostly with her own coinage determining the circulation, while coins from other Cilician mints, Cappadocia, Lydia and Rome co-exist in small numbers. Excavations in Perge [Table 55], Pamphylia, also demonstrate a localized circulation of coinage. The

excavations of Side [Table 56] could lead us to the same conclusion since most of the coins belong to the mints of Pamphylia, apart from a few that come from neighbouring provinces (Phrygia, Pisidia, Cilicia, Lydia, Mysia). The excavations of Sagalassus [Table 57] revealed coins mostly from Pisidia and Pamphylia that are neighbouring areas as well as a few coins from Rome. As we see the results of the excavations in southern Turkey verify the results of the coin hoards found in the region and indicate a highly localized circulation of civic coinage.

The coins that were found in excavations in Ankara [Table 52] came mostly from Ancyra, Galatia. The position of Ankara in the center of Anatolia allowed us to find also coins from regions such as Pontus and Bithynia (north), Cilicia and Pamphylia (southern Asia Minor), Lydia, Ionia and Caria (western Asia Minor), Syria and Mesopotamia. The lack of any bronzes from the mint of Rome is striking. The excavations in Sardis [Table 53] revealed a large number of coins, among which the coins minted in Sardis itself during the Antonine and Severan period are dominant. The rest of the mints of Lydia are also represented in the excavation finds, alongside coins from neighbouring as well as distant parts of the Roman world (mostly southwestern Asia Minor, Syria, Greece, Egypt and Italy). It seems that travelers from all over the empire visited Sardis, while Ancyra attracted people mostly from Asia Minor and Syria.

Since we have no important numbers of coin finds in Northern Turkey coming from either hoards or excavations, we should restrict ourselves to the analysis of stray finds from the museum of Sinop [Table 59]. It is important to note that, although most coins come from Pontus or Paphlagonia, there is a strong representation of mints from southern provinces such as Pamphylia, Pisidia, Phrygia, Cappadocia and Syria, while coins from western Asia are rare. The existence of Cappadocian coinage is predominant among the coin finds from another museum of Pontus, Tokat Museum [Table 60]. Although Pontic mints are still active during the Severan and Military Anarchy period, it seems that the coins of Caesarea were preferred.

The coins from the museum of Afyon [Table 62] in central Anatolia indicate a high concentration of coins from the numerous mints of Phrygia. Coins from other provinces such as Paphlagonia, Lydia, Pamphylia, Pisidia, Cappadocia, Caria, Lycaonia and a few coins from Rome are also represented in smaller numbers. The pattern of these coins remind us of the pattern of the coins from the excavations of

Ankara, another city that was situated in the middle of Asia Minor and became a major crossroad.

The structure of the coins from the museum of Fethiye [Table 61] in Pamphylia (unlike Pamphylia hoard and the excavation finds from Side) indicates an exceptionally high concentration of coins minted in Rome. In fact, it seems that the citizens of this province tended to use almost exclusively 'official' coins. The circulation of coins from Pamphylia itself is almost non-existent while we can find coins from other provinces such as Ionia, Caria, Lycia, Pisidia, Phrygia, Bithynia, Mysia, Syria and Mesopotamia, Egypt.

The following coins come from the region of Syria, a term that describes all the area south of Cilicia that includes the regions of a) Palestine (southern Syria) and b) Phoenicia, Coele Syria, Commagene and Cyrrhestica (northern Syria). I decided to include in the same group all the regions of northern Syria because this wide area is dominated by coins issued mostly at Antioch and the cities close to her. The most significant number of coin finds come from Dura Europos, a Roman fortress that lies in the middle Euphrates valley and the Syrian desert, on the frontier with Persia.

Two bronze coin hoards, Migdal [Table 63] and Silat [Table 64], come from Roman Palestine and they include coins mostly from the surrounding area. It is important to note that there are no coins from either Antioch or Rome. The hoards from Dura Europos present us with a different pattern. Only Dura 9 hoard [Table 65] includes coins only from the immediate area, Mesopotamia and Syria, while Dura 10 [Table 66], Dura 11 [Table 67], Dura 12 [Table 68] and Dura 13 [Table 69] hoards include also coins from the distant region of Pontus. The pattern becomes more complex when we study Dura 7 hoard [Table 70] that contains a higher variety of coins from the Roman world. The represented mints cover the areas of Syria and Mesopotamia, Cilicia, Pontus, Cyprus and Greece and Rome.

Coin finds from excavations in Roman Palestine indicate a highly localized circulation of coinage, a characteristic that has already been demonstrated by the Migdal and Silat hoards. Excavations in Samaria [Table 71], Jerusalem [Table 72] and Sepphoris [Table 73], show that coins came mostly from mints within Roman Palestine while a few came from northern Syria, the Dekapolis, Egypt, Cilicia, Mesopotamia and Rome. On the other hand, coins mostly from Coele Syria and Phoenicia were found in the course of the excavations in Hama [Table 74]. Coins from Syria, Egypt, Arabia, Greece and Pamphylia were found in the excavations at

Gerasa [Table 78]. Only a few coins from the mints of Rome, Arabia, Pontus and Lydia were found in Cappaernaum, while the majority of coins came from Syrian mints [Table 79].

In the excavations in Antioch [Table 75] were found mostly coins from the mint of the city, as it would be expected, since the mint of Antioch was large enough to supply with coins almost the entire Syria. Other coins that were found there came from neighbouring as well as distant regions such as Palestine, Mesopotamia, Rome, Pamphylia, Cappadocia, Cilicia, Mysia, Troas, Greece and western mints. The variety of coinages circulating in the city indicates a substantial number of visitors traveling to the region from almost every part of the empire.

Coin finds from the excavations in Palmyra [Table 76], in the Syrian Desert, have been published in various works. It seems that Antioch was supplying the area with coins during the Antonine and Military Anarchy periods. Other mints of Syria, Bithynia, Moesia, and Rome, are also represented. A very large number of coins that came from a large number of regions was found during the excavations that took place in Dura Europos [Table 77]⁸. In fact, the diversity of coinages surpasses that of Antioch. During the Antonine period, the circulation is dominated by the presence of coins from Antioch, Hierapolis, Laodicea ad Mare (Syria) and Carrhae (Mesopotamia), all of them cities nearby Dura. There are also a few coins from other areas such as Egypt, the Dekapolis, Pontus, Bithynia, Phrygia, Cappadocia, Moesia, Greece and Rome. The pattern changes slightly during the Severan period since we encounter more coins from distant areas. The higher representation of the mints of Syria and Mesopotamia is expected and should not present any difficulties in its interpretation, since the circulation of coins from local mints is a usual phenomenon. There are, though, difficulties in interpreting the presence of coins from different parts of the empire. Specifically, we find a rather large number of coins from Peloponnesian mints in Greece, and Pontus (particularly that of Amaseia). There are also coins from Arabia, Cyprus, Cilicia, Bithynia, Thrace, Troas, Ionia, Pisidia and Cappadocia. This variety of coinage does not characterize also the Military Anarchy period since the circulation then is dominated almost exclusively by Syrian and Mesopotamian coins.

⁸ The pattern of coin- finds from the excavation is comparable to the pattern of coin hoards that were found in the same area. Specifically hoards consist of coins minted in different regions of Syria and Pontus, while the coins in Dura 7 Hoard were minted in a variety of mints situated.

So far we can distinguish three different groups of cities and regions according to the coinage or coinages that circulated in these areas. First of all, we encounter areas that are characterized by coins that were minted locally, e.g. in the same province or in cities from neighbouring provinces⁹. Secondly there are instances of cities or regions where coins minted in distant places circulated along with local coins. Thirdly, there are a few regions where the intrusion of coins from mainstream mints surpasses the number of civic coins. The explanation of the regional differences in the circulation of bronze coinage is a task that I will undertake with every possible caution because of the lack of local economic studies and other mainly methodological problems.

FACTORS AFFECTING THE CIRCULATION OF BRONZE COINS

a) Authorities, administration and organization of civic mints

The predominance of coins coming from civic mints of the immediate or the neighbouring areas is the main characteristic of the coin finds that have already been presented in the previous section. Until now modern researchers accepted the phenomenon of the localised circulation of bronze coinage as a rule because of the tendency of bronze coins to travel in short distances. The nature of the use of bronze coinage, as a means of concluding minor transactions, may partly explain why the coins were not found abundantly in distant regions but it does not explain the colourful mosaic of coins from different mints that characterised the provinces in the eastern Mediterranean. We can explain these patterns only if we study the structure of the mints in the Eastern part of the Roman Empire and the administrative system that determined their function. It seems that local administration played an important role in defining the limits of the circulation of bronze. Therefore, in order to understand the patterns of movement we should, first of all, try to determine the

⁹ T.B. Jones who noticed that the circulation of coinage is restricted in concentric circles that have radius of 50, 100 and 150 miles has already detected this phenomenon. Only a small number of coins fall within the circle of 150 miles, while the majority fall within the 100-mile mark. Jones, T.B., 'A numismatic riddle: The so-called Greek Imperials', Proceedings of the American Philosophical Society, New York, vol. 107, no. 4, August 1963, pp. 308-347, esp. p.318.

authorities that were responsible for the production and subsequent supply of coinage in the markets of the Eastern Mediterranean.

Bronze coins were not minted entirely in Rome. Instead, they were produced by numerous mints that were situated in the eastern provinces of the Roman Empire. A large number of cities and various other authorities were allowed to issue their own bronze in order to provide the small change necessary for everyday transactions. Such abundance of local mints could be explained if we consider the tradition of coinages that started long before the establishment of the Roman imperial power; city-states, former Hellenistic kingdoms and local tribes issued coins intermittently and supplied them to local populations¹⁰. Initially many of these coinages continued as if nothing had happened, although the provinces were now administered by Rome¹¹.

It seems that eastern cities were responsible for the funding and issuing of coinage. Inscriptions on coins help us identify the authorities that were responsible for the administration of every city and their role in the production of civic coins¹². Local magistrates (*γραμματεὺς*, *στρατηγός* etc.) were often involved in the organization of public works, including the production of coinage¹³. Their names appear on coinages in Asia Minor, although the appearance of their names does not necessarily imply that these officials were directly involved in financing or overseeing the production. The formula (*ἐπί*+genitive) may only date an issue¹⁴. Only a few inscriptions provide specific evidence about the organization of coin production. It seems that the production of bronze coinage was an *ἐπιμέλεια* (care) that is mentioned on coins in association with the person who undertook it. The common formula is *ἐπιμεληθέντος* + name of the magistrate in the genitive¹⁵. Such legends occur on coins that were issued in Antioch and Aphrodisias in Caria, Philadelphia in Lydia and Cotiaeum in Phrygia during the Flavian period. The use of this word implies that the

¹⁰ A general account of city-state coinages is given by Kraay, C.M., Archaic and Classical Greek Coins, London: Methuen 1976; For a general introduction on Hellenistic coinages see Mørkholm, O., Early Hellenistic Coinage: From the Accession of Alexander to the Peace of Apamea (336-188 BC), Cambridge: Cambridge University Press 1991.

¹¹ Butcher, K., Roman Provincial Coins, London: Seaby 1988, p. 15.

¹² For Greek legends on Roman coins see: Burnett et al., Roman Provincial Coinage I, p. 43.

¹³ For the titles of magistrates that are commonly found on coinage see Burnett, A., Amandry, M., Carradice, I., Roman Provincial Coinage, II, Part I, London: British Museum Press /Paris: Bibliothèque Nationale 1999 pp. 4-5.

¹⁴ Butcher., Roman Provincial Coins, p. 24.

¹⁵ Howgego, C., Greek Imperial Countermarks, London: Royal Numismatic Society 1985, p. 85.

city authorized or/and appointed a person, whether he was a magistrate or not, to take care of the production of coinage¹⁶.

The magistrates took upon themselves the minting of coins in the same way that they undertook other tasks, e.g. the construction of public buildings. Although the magistrate probably paid for the dies, the mint and its staff, it is unlikely that he was also responsible for the provision of bullion. A formula that refers to the funding of an issue is the verb *ἀνέθηκε* with the name of the magistrate or the prepositions *διὰ* or *παρά* and the name of the magistrate¹⁷. Although it has been suggested that the donation in some cases may be the statue depicted on the coin and not the coin itself, there is a strong possibility that the magistrate involved paid for part of the production of coins. An inscription mentions Apollodotos (*στρατηγός*), who struck (*κόψας*) coins and was also a magistrate at the time of the issue¹⁸.

It could be supposed that the above magistrates did not undertake such a task without the authorization of the administrative body of the city. Therefore it is necessary to define with as much precision as possible the identity of this body. Inscriptions found on coins could indicate that the *βουλή* (council) could have been responsible for decisions relevant to the issue of coinage. Specifically, the formula *ψηφισαμένου* on certain civic issues suggest that the *βουλή* gave its permission to the citizen, who brought in front of the council the motion, to go ahead with production¹⁹. The occurrence of both *ψηφισαμένου* and *ἀνέθηκε* is attested on a unique Domitianic coin from Mylasa, *ΨΗΦΙΣΑΜΕΝΟΣ ΚΛΑΥΔΙΟΣ ΜΕΛΑΣ ΑΝΕΘΗΚΕΝ*, where it

¹⁶ Burnett et al., *Roman Provincial Coinage II*, Part I, p. 4

¹⁷ Robert, L., *Monnaies antiques en Troade*, Geneva/Paris 1966, p. 86, n. 3 mentions a coin of Mylasa with the inscription 'psefisamenos Klaudios Melas anetheke'. Also see: Burnett, et al., *Roman Provincial Coinage, II*, Part I, p.3. For the formula *διὰ* and *παρά* + name of magistrate see also Head, B.V., *Historia Nummorum: A Manual of Greek Numismatics*, 2nd edition, Oxford: Clarendon Press 1911, p. 679. There is another formula used in the Western Roman world or during the Hellenistic period. Specifically, the inscriptions that mention the provision of bullion by an individual, called *δωρεά*, are rare and exceptional. Two issues at Paestum were perhaps funded by individuals but two others were from the revenue of local taxes, in Crawford, M., 'La monetazione di bronzo di Poseidonia-Paestum', Supplement to *Annali: Istituto Italiano di Numismatica: Atti del III Convegno del Centro Internazionale di Studi Numismatici*, Napoli 19-23 April 1971, vol. 18-19, Rome 1973, pp. 47-109, esp. pp. 53-4 and 101. Also an exceptional issue of silver coinage from Chios donated by Antiochos of Commagene, in IGRom 954; SEG 16, 490; Robert, L., *Études épigraphiques et philologiques*, Paris: Champion 1938, pp. 139 ff; Head, *Historia Nummorum*, 601. There are, though, no known examples of the formula *δωρεά* from the eastern provinces during the second and third centuries.

¹⁸ IGR 4, 769.

¹⁹ Robert, L., *Monnaies grecques: Types, légendes, magistrats monétaires et géographie*, Geneva/Paris: Droz 1967, pp. 54ff. Also see a coin-inscription from Stratoniceia in Caria, BMC Caria 153, Nr. 42 for *ψηφισαμένου*. See Head, *Historia Nummorum*, Vuthrotum 320, Dyme 414, Cnossus 463 and Sinope

seems that Claudius Melas called for the vote of the coinage and subsequently paid for it²⁰.

We should also try to explore the role of the central government that resided in Rome in the production of local bronze coinage. Ancient writers already suggest the possible need for the interference of the emperor. Dio Cassius in the third century says: "None of the cities should be allowed to have its own separate coinage or system of weights and measures; they should all be required to use ours"²¹. The truth is that Rome followed this rule only partly. The fact that the local cities were responsible for the administration of mints and the initial decision for the production of new issues of coinage, allows us to think that central control was not as tight as Dio Cassius wanted to believe. A certain degree of administrative freedom concerning the production of bronze coinage was probably granted from Rome to individual cities according to their needs and abilities.

On the other hand, the local governors, as representatives of the imperial authority in the provinces could possibly influence the production of bronze coinage. There are a number of instances of the occurrence of a proconsul's name on the coinage (*ἐπί*+genitive or dative+title). In some cases we should just consider their names as a way to present the date of the issue of the coin, while in other cases the direct influence of the proconsul in the minting process cannot be excluded²².

The literary sources refer directly to the permission of the emperor or the provincial governor for the establishment of a new mint or for the continuance of the production. In his *Life of Alexander of Abonuteichus*, Lucian mentions a petition about a city's coinage. Specifically the pseudo-prophet Alexander led envoys requesting permission from the emperor Marcus Aurelius to change the name of their city and the design of their coins²³. Contrary to the literary sources, numismatic evidence suggests that god Glykon was never presented on the coins that were minted from the authorities of the city of Abonuteichus. It is possible that Lucian, in his effort to satirize the deeds of Alexander, invented the story as an example of his extreme thirst for fame and glory. Even if the story should not be considered a true

509 for the formula *ex decreto decurionum* that was inscribed on coins minted in Roman colonies instead of *ψηφισαμένου*.

²⁰ Ibid. note 15.

²¹ Dio LII, 30, 9: «μήτε δέ νομίσματα ἢ καὶ σταθμά ἢ μέτρα ἰδίαι τις αὐτῶν ἔχέτω, ἀλλὰ καὶ τοῖς ἡμετέροις καὶ ἐκεῖνοι πάντες χρήσθωσαν»

²² Burnett et al., *Roman Provincial Coinage II*, Part I, p. 3

historical event, we ought to acknowledge the fact that such petitions probably were common practice during the Principate, since Lucian does not explain further the phenomenon to his readers. Although the citizens of Abonuteichus decided not to use the god-snake with healing power as type on their coins, other cities feature Glykon on their coinages, among which neighbouring Tieion²⁴.

In some cases we encounter the formulas, in Greek: *αἰτησάμενου* or *εἰσαγγέλαντος* + the name of a person. L. Robert has argued that the occasional appearance of the word *αἰτησάμενος* on the civic coinage denoted that an embassy visited the emperor seeking permission to issue coins or to renew their already existing permission to coin²⁵. The first appearance of the word on coins of Nero has the legend *AITHSAMENOY TI BASILLOU EF OYOLASENNA ANΘYPIATΩ*. Dr. Weiss and Dr. Nollé in two articles that were published almost at the same time agree that Robert's views were wrong and that the *αἰτησάμενος* is the person or magistrate who proposed coinage to a local civic body and who later may have undertaken the cost of minting²⁶. According to a third theory presented in the second volume of Roman Provincial Coinage, neither L. Robert nor Weiss and Nollé are entirely correct. It seems that in some cases the word *αἰτησάμενος* denoted a request to either the emperor or governor, while in others the word refers to a local proposal. This way we could assume that a degree of imperial interference in the production of local coinage was likely, although it may not have been systematic. The petition, on the other hand probably aimed at flattering the emperor rather than anything else and it did not seem to have a practical purpose²⁷.

²³ Lucian, Life of Abounotheichus 43; Babelon, E., 'Le faux prophète Alexandre d' Abonotichos', *Revue Numismatique* 4, Nr. 4 (1900), pp.1-2;

²⁴ A type of Glykon on the coins of Tieion is mentioned by Jones, C.P., 'A follower of the god Glykon?', *Epigraphica Anatolica* 30 (1998), pp. 105-109, esp. p. 107; A list of the cities that issued coins with the type of Glykon can be found in Miron, A.V.B., 'Alexander von Abonuteichos: Zur Geschichte des Orakels des Neos Asklepios Glykon', in W. Leschhorn, V.B. Miron and A. Miron (eds.), *Hellas und der griechische Osten: Studien zur Geschichte und Numismatik der griechischen Welt. Festschrift für Peter Robert Franke zum 70. Geburtstag*, Saarbrücken: SDV Saarbrücker Druckerei und Verlag GmbH 1996, pp. 152-188, esp. pp. 159-160.

²⁵ Robert, L., 'Αἰτησάμενος sur les monnaies', *Hellenica: Récueil d' epigraphie de numismatique et d' antiquités grecques*, 11/12, Limoges: A. Bontemps 1960, pp. 53-62; Robert, L., *Monnaies Grecques, Types, legends, magistrates monétaires et géographie*, Geneve/Paris: Droz 1967, pp. 53-54.

²⁶ Weiss, P., 'Zu Münzprägungen mit den Formulen *AITHSAMENOY* und *EISANGEILANTOS*', E. Schwertheim (ed.), *Studien zum antiken Kleinasien*, II, *Asia Minor Studien*, vol. 8, Bonn 1992, pp. 167-179; Nollé, J., 'Städtisches Prägerecht und Römische Kaiser: Suchten die Städte Kleinasien beim römischen Kaiser um das Recht nach Bronzemünzen zu prägen? Überlegungen zu dem Formular *αἰτησάμενου τοῦ δεινός*', *Rivista Italiana di Numismatica* 95 (1993) pp.487-504.

²⁷ Burnett et al., *Roman Provincial Coinage*, II, Part I, pp. 1-2; For bronze coins issued in the western part of the empire see Crawford, *La monetazione di bronzo di Poseidonia-Paestum*, p. 55, n. 34.

Conflicting ideas concerning the meaning of *εἰσαγγέλαντος* were expressed initially by Head²⁸, who translated it as ‘on the acceptance of a report by...(some local magnate)’ and later by Harl who translated it as ‘announced the good news’²⁹. It seems that comparative material from inscriptions strengthens the direct association of *εἰσαγγέλαντος* with *αἰτησαμένου* and that they could both be connected with the permission for striking coinage from a local body of authority, as Peter Weiss suggested. A coin from Eumeneia which bears the inscription *ΕΙΣΑΝΓ(Ε)ΙΛΑΝΤΟΣ Μ ΚΑ ΟΥΑΛΕΡΙΑΝΟΥ ΑΡΧΙ ΑΣΙΑΣ* mentions the person who brought the proposal in front of the authorities of the city³⁰.

The permission of a higher authority becomes clear also when we analyze the inscriptions on coins that were issued from eastern colonies. *Permissu Augusti* is recorded on issues in eastern as well as western provinces inscribed mostly as *PERM.IMP.*³¹. This formula probably refers to the restoration of the privilege of coining. An issue of Patrae with the legend *INDVLGENTIAE AVGVSTI MONETA INPETRATA* on the obverse of a *sestertius* looks like an elaborate version of the formula *PERMISSV CAESARIS AVGVSTI*. This coinage probably indicates the way in which colonies acquired the right to issue money: by direct application to the emperor. Although *Indulgentia Augusti*, ‘the Gracious Favour of the Emperor’, appears rarely on coins, it reveals that in some isolated cases permission was sought by the colonies in order to mint new issues³².

It has already been suggested that the cities sent embassies and asked for the permission of the emperor in order to issue coinage as an attempt to flatter him³³ and not because they needed such a permission. It is true that the emperors would probably not be particularly interested in minor issues such as the direct control of production of bronze currency in the East. The demands of the empire would not allow him to consider personally all the petitions for new issues, since the civic mints

²⁸ Head, *Historia Nummorum*, 662.

²⁹ Harl, K.W., *Civic Coins and Civic Politics in the Roman East AD 180-275*, Berkeley/Los Angeles/London University of California Press: 1987, p.24, n.32.

³⁰ Weiss, P., ‘Zu Münzprägungen mit den Formeln’, p. 176-177.

³¹ Howgego, *Greek Imperial Countermarks*, p. 88; Burnett, A., ‘The authority to coin in the Late Republic and Early Empire’, *Numismatic Chronicle* 147 (1977), pp. 37-63, esp. pp. 58-59; The same idea is repeated in Burnett et al., *Roman Provincial Coinage I*, pp. 3-4 as well as Burnett et al., *Roman Provincial Coinage II*, Part I, pp. 2-3.

³² Levy, B.E., ‘*Indulgentiae Augusti Moneta Inpetrata*: A Flavian episode’, H. Huvelin, M. Christol and G. Gautier (eds.), *Mélanges de Numismatique offerts à Pierre Bastien à l’occasion de son 75e anniversaire*, Wetteren-Belgium: Editions NR 1987, pp. 39-49; Burnett, et al., *Roman Provincial Coinage*, II, Part I, p. 3.

were already a few hundred by the third century. Although the inscriptions specifically mention cities asking the emperor for permission, they also state the names of various magistrates as well as the decree of the *Βουλή*, a fact that allows us to suggest that the organization of local mints relied mostly on individual initiative and the power of the city's council. The involvement of the governor or other Imperial intervention would have been only occasional³⁴.

Since the actions of the Councils and the magistrates of individual cities mainly regulated the production of coinage in the East, we would expect certain diversity in the volume of the issues, the different reigns during which minting took place and the types. This situation could also explain the varied as well as localized character of the circulation pools existing in different provinces or regions, since almost every city decided to produce its own bronze coinage that eventually circulated in the immediate area. As we have already seen, when we described the numismatic material from coin hoards, excavations and museums, in most cases, it seemed that the circulation of coinage was restricted to the same city, where the coins were issued, or in neighbouring cities. Imperial authorities probably did not need to force the circulation of bronze coins in areas far from the place of their issue, because civic mints existed throughout the eastern Mediterranean and could supply the markets in the vicinity. Furthermore, the authorities responsible for the production and distribution of bronze coinage of an individual city took their administrative decisions without considering the opinions of the magistrates of other cities in regard of the same matter. The outcome of this behaviour was the creation of a wide range of small circulation pools within each province.

If the variety of mints that were active during the Principate in the eastern provinces could be one of the reasons for the localised circulation of bronze coins, other political or administrative factors beyond the limits of an individual city might have affected the circulation of bronze coinage in the opposite manner. First of all, it seems that the issuing authorities in the provinces of the Roman Empire were not only the individual cities but also the existing '*κοινά*' (leagues), at least until the first century AD. Some of these mints seem to have been controlled by the Romans, and,

³³ *ibid.* note 26.

³⁴ Burton, G.P., 'Proconsuls, assizes and the administration of justice under the empire', *Journal of Roman Studies* 65 (1975), pp. 92-106, esp. pp. 102-106.

though a few of them produced superficially civil or regal issues, most of the coins lack any form of overt authority or ethnic, a fact that allows us to believe that they should be regarded as 'official' issues³⁵. Furthermore, the coinage would presumably need the approval of the *κοινόν*³⁶. We know that cities and *κοινά* minted the bulk of the coins that circulated in the eastern provinces because they included their ethnic or name to denote their coins as legal tender³⁷. The cities were eager to publicize their role in the production of coinage for reasons that I will explain in the course of the fifth chapter. Concerning the circulation of league-coinages within a province we have no numismatic evidence to support the assumption that such coins circulated more widely than a civic issue, although they may have been popular among the cities of the *koinon*. Especially during the second and third centuries that are the subject of this thesis we do not find any such coins in circulation.

Another numismatic phenomenon that should be explored is the issue of *homonoia* coins. These coins were issued in the name of two or three different cities or a city and a *koinon* until the third century AD. All of them were inscribed with the word *ὁμόνοια*, which signifies concord between the cities. There is no evidence to suggest that the authorities of both cities were responsible for the issues, although such a possibility cannot be entirely excluded. Furthermore, even if the coins were not the result of a joint decision it is possible that one city would inform the other in order to strengthen the friendly bonds between them. There are more than 78 cities among which Smyrna, Ephesus, Laodicea, Pergamos and Sardis that minted 400 *homonoia* issues in more than 160 combinations. The coins that we could find today in museums and other private collections reach the number of 4000 pieces, which represent around 24 million *homonoia* coins circulating in the Eastern Mediterranean during the Roman Principate³⁸. Although this number seems to be sizeable, in fact we

³⁵ For examples see Burnett et al., *Roman Provincial Coinage*, I, p.4.

³⁶ Burnett et al., *Roman Provincial Coinage* I, p. 3: Koina of Macedonia, Lycia and Crete during the Julio-Claudian period; Burnett et al., *Roman Provincial Coinage* II, Part I, p. 6: Koina of Paphlagonia, Cyprus, Galatia, Bithynia, Crete and Macedonia during the Flavian period; A case of two silver coinages minted by one *koinon* is described in Troxell, H.A., 'The coinage of the Lycian League', *American Numismatic Society, Numismatic Notes and Monographs* 162 (1982) pp. 227-234.

³⁷ Harl, K., *Coinage in the Roman Economy, 300 BC to AD 700*, Baltimore/London: John Hopkins University Press 1996, p. 107.

³⁸ Franke, P.R., *Kleinasien zur Römerzeit: Griechisches Leben im Spiegel der Münzen*, München: Beck 1968, pp. 16-17; Franke, P.R., 'Zu den Homonoia-Münzen Kleinasien', in E. Olshausen (ed.), *Stuttgarter Kolloquium zur historischen Geographie des Altertums*, Dec. 8-9 1980, Bonn: R. Habelt 1987, pp. 81-102, esp. pp. 81 and 89-90. P.R. Franke suggested the number of 24 million *homonoia* coins circulating in the Eastern provinces based on the coins existing today in museums, but we cannot possibly know the approximate number of the coins that were actually produced.

do not know what was the ratio of *homonoia* coins in comparison with the rest of the civic issues that were already in circulation. It is possible that the percentage was rather small since the representation of *homonoia* issues among other coin finds from excavations is negligible.

The reasons for these issues are varied and they are not entirely clear. Initially it has been suggested that *homonoia* during the Principate was a form of *ισοπολιτεία* between two different cities, a constitution that survived from the classical and the Hellenistic period³⁹. This view has been rejected since it has been found that the relationship between the cities was not based on any legal agreements⁴⁰. The most widespread theory is that the production of *homonoia* coins was justified by a combination of economic, religious and political reasons. Trade, religious festivals, *ἀγῶνες* and political *φιλία* could be the main incentives⁴¹. According to a more recent theory the reference to *homonoia* on inscriptions or coins is a campaign for, or a celebration of the ending of a quarrel between two communities. During the Roman period friction was endemic among Greek cities. Their differences involved issues such as territorial limits, revenues, trade, intermarriage, status and prestige. Although none of these particular disputes can be linked to an issue of *homonoia* coins, it seems that these coins were minted by cities with obvious conflicting interests, especially along a common boundary⁴².

Although the number of *homonoia* coins that were found in the course of excavations or in local museums or even coin hoards is quite low, it is interesting to see whether the two issuing authorities belonged to the cities of the same circulation pool, as this pool is determined by the coins found in the area⁴³. It seems that most of

³⁹ Kienast, D., 'Die Homonoia Verträge in der römischen Kaiserzeit', Jahrbuch für Numismatik und Geldgeschichte 14 (1964) pp. 51-64; Stahl, M., Imperiale Herrschaft und provinzielle Stadt, (Hypomnemata 52), Göttingen: Vanderhoeck & Ruprecht 1978, p. 136.

⁴⁰ Jones, C.P., 'The Roman World of Dio Chrysostom', Cambridge Mass.: Harvard University Press 1978, p. 84; Price, S., Rituals and Power, Cambridge/ New York: Cambridge University Press 1984, pp. 126-132 and 139.

⁴¹ Franke, 'Zu den Homonoia-Münzen', pp. 93-100.

⁴² Sheppard, A.R.R., 'Homonoia in the Greek cities of the Roman empire', Ancient Society 15-17 (1984-1986), pp. 229-252.

⁴³ For a comprehensive catalogue of *homonoia* issues see: Callu, J.-P., La politique monétaire des empereurs romains de 238 à 311, Paris: Boccard 1969, pp. 29-33; Also more recent bibliography: von Aulock, H., 'Kleinasiatische Münzstätten V: Die Homonoia-Münzen von Mytilene', Jahrbuch für Numismatik und Geldgeschichte 19(1969) pp. 83-88; Macdonald, D., 'The Homonoia of Colossae and Aphrodisias', Jahrbuch für Numismatik und Geldgeschichte 33 (1983), pp. 25-27; Karwiese, S., 'Der Caesar MAXIMUS und die Homonoia AKMONEIA-EYMENEIA', Numismatische Zeitschrift 86 (1971), pp. 40-42; Winsemann Falghera, E., 'Un'emissione di *homonoia* tra Ephesus e Tralleis di Lucius Verus', Annotazioni Numismatiche 2 (June 1991), pp. 18-21; Martini, R. and Winsemann Falghera, E., 'Emissioni di *homonoia* tra Ephesus e Smyrna di Antoninus Pius', Annotazioni

the coins that were issued in different provinces by distant mints (whether they are *homonoia* or simple civic coins) are not represented among the coin finds of the excavation or hoards of the city that was a member of a *homonoia* relationship. It would be tedious to mention every single case of *homonoia* relationships between cities that was not verified by the coins found in the course of excavations. Therefore I would like to mention in detail only one distinctive example: it seems that there are no civic coins from the mint of Sardis in the Afyon museum, although *homonoia* coins between Sardis and Hierapolis were issued during the reigns of Philip and Valerian. Dozens of other similar examples can verify that the cooperation of two cities in producing common coinage did not enforce the circulation of their civic coins in areas where their existence is not supported by other economic factors. The excavation finds from the provinces of Asia Minor - Pontus, Troas, Ionia, Lydia, Caria, Lycia, Pamphylia, Pisidia and Galatia - demonstrate that *homonoia* coins did not facilitate the creation of common circulation pools. The same phenomenon applies to the coins of Greece such as Thrace, Athens, Delphi and Lakedaimon, all of which were issued in association with cities of Ionia, Pamphylia and Pisidia. It is evident that the circulation pools of the different regions of Greece shared neither *homonoia* nor other civic issues minted in the above provinces of Asia Minor. There are of course exceptional cases such as Phrygia, where a lot of *homonoia* coins were minted by local cities. Although *homonoia* coins are not yet found, it seems that other civic issues minted by these same cities circulated widely within the province and are actually represented in large numbers in the circulation pool of Phrygia. This phenomenon can easily be explained if we accept that bronzes circulated close to the city or the province where they were minted.

So far, it seems probable that the administration of civic mints affected the creation of localized circulation pools that were not affected (at least not in a large scale) by more centralized administrative attempts. Both *koinon* and *homonoia* issues had only a marginal effect on the circulation of civic bronzes and should not be considered important. There is, though, another section of the organization of mints that should be studied in detail.

Numismatische 5 (1992), pp. 87-90; Kampmann, U., *Die Homonoia Verbindungen der Stadt Pergamon oder der Versuch einer kleinasiatischen Stadt unter römischer Herrschaft eigenständige Politik zu betreiben*, Saarbrücken 1996.

Although there was no dominant Imperial control on civic issues, we should always have in mind that every city did not necessarily have its own independent mint. It has been suggested that during the Roman imperial period in Asia Minor there were at work not hundreds of mints of individual communities, but just a relatively small number of workshops that supplied issues for a whole range of cities. The phenomenon was studied for the first time by Konrad Kraft, who noticed strong stylistic similarities among coins of different cities, as well as many cases of shared obverse dies. According to his theory, a mint with several engravers produced dies, flans and coins, while carrying these dies from one city to the other⁴⁴. These views have been challenged in favor of one single engraver that carried dies with him and traveled from city to city offering his services⁴⁵. The dismissal of the existence of these workshops, though, has not been satisfactorily proved. In fact, Ann Johnston in a series of articles manages to support, and subsequently clarify the views, as K. Kraft presented them⁴⁶. The case study of Aphrodisias especially allowed her to imply that two or three large fixed mints, regional or mobile, employing several engravers produced the dies for a certain city. Either dies and coins were produced centrally or dies/engravers were dispatched to branch operations that employed few staff⁴⁷.

A combined study of the extent of the influence of the above workshops and the circulation of coins in Asia Minor could give us an insight into the power of central workshops on the formation of larger circulation pools. The main problem that prevented me from studying this phenomenon extensively is the lack of detailed die studies of the coins that were issued in most of the mints of Asia Minor. It seems that K. Kraft used only a small part of the vast number of coins that were produced and in every case he tried to attribute all of these coins to perhaps a dozen workshops, a number that is probably lower than the real one. Since the dimensions of the supply areas often cover more than 100-200km⁴⁸, we could suppose that in some instances

⁴⁴ Kraft, K., Das System der kaiserzeitlichen Münzprägung in Kleinasien, Berlin 1972, esp. pp. 57 and 90-91.

⁴⁵ MacDonald, D., The Coinage of Aphrodisias, London: Royal Numismatic Society, Special Publication 23, 1992, pp. 5-8

⁴⁶ Johnston, A., 'Review article: New problems for old, Konrad Kraft on die-sharing in Asia Minor' Numismatic Chronicle, 7th series, 14 (1974), pp. 203-207; Johnston, A., 'Die-sharing in Asia Minor: The view from Sardis', Israel Numismatic Journal 6-7 (1982-1983), pp. 59-78.

⁴⁷ Johnston, A., 'Aphrodisias reconsidered', Numismatic Chronicle 155 (1995), pp.43-100, esp. pp. 54-61.

⁴⁸ Kraft, Das System der kaiserzeitlichen Münzprägung, p. 275.

the activities of individual workshops overlap with each other, a phenomenon that needs further analysis.

Although future studies may be able to prove that the activities of the workshops affected the circulation of bronze coins and forced them to spread in a wider area, for the time being we cannot support such a theory. In fact, there is a negative factor that may have prohibited the movement of local coins as widely as the movement of dies. It has been noticed that even if common dies were used in more than one city, we should not presume that they used only one denominational system, since there are often enormous variations in the weights and diameters of flans struck with the same types and sometimes even with the same dies⁴⁹. Even if bronze coins of different denominational systems could still circulate side by side, the people who run the workshops did not attempt to create a uniform currency. Instead they followed the different policies that were already established in different cities.

The above evidence allows us to assume that a wide range of cities and their magistrates were responsible for the production of small denominations that were destined to be used in the immediate area in order to facilitate minor commercial transactions. The variety of coins minted in different cities (mostly of the same province or, in rare cases, cities of distant provinces) could easily be noticed also in the coin finds from excavations, museums and coin hoards. The huge number of cities that minted bronze coinage seems to have affected the restricted movement of these coins within a small circulation pool. Since civic authorities minted the necessary currency, there was no apparent reason to 'import' coins from distant areas. Local needs were probably covered by local mints unless an emergency arose, such as the situation in Mylasa at the beginning of the third century⁵⁰. On the other hand, *homonoia* coins demonstrate that political and religious reason had no important effect on the circulation of bronzes and they never facilitated the movement of a large number of civic coins in areas beyond their restricted circulation pool. Only economic reasons could have caused the movement of small denominations towards remote regions, so that they could be used by the populations who probably did not have the chance to establish their own mints.

⁴⁹ Johnston, 'Aphrodisias reconsidered', p. 61.

⁵⁰ See chapter 5, on the inscription from Mylasa.

b) The significance of mainstream mints

We have seen that under the Principate the Roman Imperial government was responsible for the control, production and supply of gold and silver currency throughout the empire. The number of mints that produced precious metal coinage was limited and during the first two centuries minting was mainly restricted to the cities of Rome, Caesarea Cappadociae, Antioch and Alexandria⁵¹. It has been suggested that the mint of Rome produced the bulk of the silver coins that circulated in the eastern provinces⁵². The emperor directly or indirectly controlled these mints mainly because he needed these coins in order to pay for his expenses. During the late second and the early third century the emperor would also profit from the production of the debased silver coins, since their face value remained the same.

On the circulation of *aes* we can assume that originally, it was intended mainly for circulation in Rome and Italy, although eventually it was spread over the western provinces and especially in the Rhine army camps. The use of Roman *aes* was also extensive in the urbanized Mediterranean provinces of the West, especially in Iberian and Punic towns that had produced civic coinage for centuries. During the reigns of Augustus and Tiberius an outpouring of Roman style bronze money from civic mints in Gaul, Spain, Sicily, Africa, and Cyrene satisfied the demand for small change, but most city mints suspended or reduced operations in the 30s. During the Flavian times, when new bronzes were in need, the central Roman mint increased its output, while Spanish towns, such as Corduba, reissued worn coins by countermarking. Although in the Flavian age Tarraco and Lugdunum also may have struck sporadic issues of imperial *aes*⁵³, the mint of Rome became the main supplier of small denominations. Since western mints rarely produced their own coinage, virtually all Roman bronze coins of the late first and second centuries found in the Western Empire, whether on an excavation or in a hoard or as a casual find, were minted in Rome⁵⁴.

It was suggested that the authorities who minted Imperial bronze coins either in the western provinces or in Rome at this period were mostly concerned about fixing the size of issues according to the army's need for coin, rather than about the

⁵¹ In the western part of the empire mints were active only until the beginning of the first century AD. Also, in the middle of the third century other western mints were established (Siscia, Milan etc.).

⁵² See chapter 3.

⁵³ Harl, K., *Coinage in the Roman Economy*, p. 90.

⁵⁴ Hobley, A.S., *An Examination of Roman Bronze Coin Distribution in the Western Empire, A.D. 81-192*, BAR International Series 688, Oxford 1998, p. 12.

convenience of civilians. Among the published coins of known provenance the largest quantities of official Augustan and Tiberian *aes* and its denominations have come from excavations in military sites along the German frontier and from chance finds in that region. Although the soldiers were paid in *denarii* or *aurei*, it is probable that the *aes* could have also been used in certain cases as payment. Subsequently, some part of the change that was produced by the government probably passed gradually into general circulation and was used for small every day transactions, facilitating a movement towards a monetized economy, at least in places where the troops were stationed⁵⁵.

The situation in the Eastern part of the empire was different since civic mints were responsible for the production of the bulk of bronze coinage that circulated in the provinces, as we have already seen. The tables describing the contents of coin hoards, excavation and stray finds during the Antonine, Severan and Military Anarchy period demonstrate the high proportion of civic coinage at least during the first two periods. Either the local mint or other mints from the same or neighbouring provinces supplied the market with small change and covered the needs for any retail transactions in the immediate area. The situation continued until the period of Military Anarchy, when coins from civic mints in the circulation pool gave way to 'official' coins from mainstream mints. The decline of civic coinage after the reign of Gordian III was finally completed by the reign of Gallienus. The reasons for this decline will be analysed thoroughly in the course of the fifth chapter.

Although the inhabitants of the Roman empire preferred using local coins in their transactions, it is easy to notice the influence of the coins from the Roman mint in the formation of regional circulation pools. Roman imperial bronze coins can be found throughout the eastern provinces, though, in different numbers. Of course the distance between a specific area or city and Rome may play an important role in the representation of 'official' coins among the finds. For example, we should expect more Roman imperial coins circulating in western Greece that is closer to Italy than western Syria that lies further away⁵⁶.

⁵⁵ Rodewald, C., *Money in the Age of Tiberius*, Manchester: Manchester University Press 1976, pp. 52-69; The same idea is elaborated in Hobley, *An Examination of Roman Bronze*, p. 138-139, who thinks that 'if there is a shortage of small change, the individuals most inconvenienced will be the military... What the civilians think of the lack of small change been of little concern to the State'.

⁵⁶ See tables 29 (excavations in Patras), 37 (Yiannena museum), 38 (Corfu museum) for Greece and 71 (Samaria excavations), 72 (Jerusalem excavations), 73 (Sepphoris excavations), 74 (Hama

Exceptions that disturb the picture of the circulation of small change in the East can always be detected among our data. Specifically, some regions demonstrate a higher concentration of Roman imperial bronze coins that overcomes the number of civic coins minted in the immediate area. Three hoards from Greece, Roufou (Patras) [chart 34], Athens 1 [chart 35] and Scarminga (Peloponnese) [chart 36], including mostly *sestertii* could easily be explained if we consider that Patras and Athens were ports and accepted every year hundreds of travellers from every part of the known world carrying different kinds of coins⁵⁷. The Scarminga hoard belongs to the same circulation pool of the province of Achaëa. A substantial number of Roman *sestertii* has been also recovered through rescue excavations in Thessaly [chart 37]. Since this type of excavation does not always present us with accurate results it is essential to compare them with stray finds from Volos museum, where civic coins seem to predominate [chart 38]. On the other hand, the systematic excavations at Curium, Cyprus [chart 39], demonstrate a substantially high number of Roman official coins circulating in the island during the Principate. We reach the same conclusions when we study the stray finds from the museums of Kavala and Komotene [chart 40] in southern Thrace, where bronzes from the Roman mint seemed to be preferred by the local populations during transactions.

A hoard from Lycia [chart 41], in Asia Minor, that contains mostly Roman *sestertii* cannot be compared with either excavation finds or stray finds from museums, therefore we should not conclude that this phenomenon is typical of the province of Lycia (although the intense circulation of imperial bronzes in this province is accepted by some numismatists as a *de facto* situation). On the other hand, there is a contradiction in the coin finds that come from the province of Pamphylia. In some cases the pattern demonstrates an incredibly high number of Roman official bronze coins circulating in the area, while in others civic coinage is predominant. Specifically, most of the coins in Fethiye museum [chart 42] minted during the Antonine period until the middle of the third century seem to have been issued in Rome. On the contrary, the Pamphylia Hoard [Table 47] and Side excavations [Table 56] do not verify the above pattern. Not even a single bronze coin

excavations), 75 (Antioch excavations, though a substantial number of coins from Rome arrived in the area during the Antonine period) from Syria.

⁵⁷ See also above.

from the mint of Rome has been found in either of them, a fact that distorts the view we get from Fethiye. Such an inconsistency cannot be explained, at least for now⁵⁸.

In summary, we encounter the inexplicable phenomenon of the predominance of bronze coins minted in Rome at least in four different regions: Thrace, Pamphylia, Rhodes and Cyprus. The first question that springs to mind is why did they differ from the rest of the empire where local coinage was the main currency? All of them seemed to have their own mints that produced coins intermittently during the Principate. The coins that were minted in Thrace⁵⁹ circulated mainly in Thrace itself, although we also find them in provinces such as Achaia [Tables 28, 30] and Pamphylia [Table 47]. Pamphylia, the southern province of Asia Minor, had also the right to produce its own coinage and six mints were active most of the time. Specifically, Perge (576 coins) was the most important mint, Side (337 coins) came second, while Aspendus (149 coins), Attaleia (117 coins), Sillyum (131 coins) and Magydus (75 coins) seemed to be smaller⁶⁰. The volume of the production should have been quite high, since these cities had to provide coinage also for smaller settlements⁶¹. The distribution of these coinages also exceeded the borders of the province. We find Pamphylian coins in provinces such as Caria [Table 51], Pisidia [Table 57], Pontus [Table 59] and Phrygia [Table 62], a phenomenon that allows us to suspect that there was abundance of Pamphylian coinage in circulation. Rhodes, although it is a small island, minted its own coinage until the reign of Caracalla⁶² and as a major port imported coins from every province of the Roman empire. Therefore I

⁵⁸ The coin finds have not been published yet. Until then, there is a possibility that other coins from Fethiye museum may enrich the catalogue and alter the results.

⁵⁹ Schönert-Geiss, E., Griechisches Münzwerk: Die Münzprägung von Maroneia, Berlin: Akademik Verlag 1987; Schönert-Geiss, E., Griechisches Münzwerk: Die Münzprägung von Augusta Traiana and Traianopolis, Berlin: Akademik Verlag 1991; Schönert, E., Griechisches Münzwerk: Die Münzprägung von Perinthos, Berlin: Akademik Verlag 1965; Schönert-Geiss, E., Die Münzprägung von Byzantion: Die Kaiserzeit, II, Berlin 1972. Although the production of these coinages was intermittent and probably low, there was always the potential of an increase if they needed more small change in the market instead of the import of Roman Imperial bronze coinage.

⁶⁰ Lauritsen, F.M., Some Greek Imperial Coins from Southeastern Asia Minor, diss. Ph.D., Minesota 1973, p. 97; Baydur, N., 'Die Münzen von Attaleia in Pamphylien', Jahrbuch für Numismatik und Geldgeschichte 25 (1975) pp. 33-45; Baydur, N., 'Die Münzen von Attaleia in Pamphylien', Jahrbuch für Numismatik und Geldgeschichte 26 (1976) pp.37 ff.; Hill, G.F. (ed.), British Museum Catalogue of Greek Coins of Lycia, Pamphylia and Pisidia, vol. 19, London: The Trustees of the British Museum 1897.

⁶¹ Leschhorn, W., 'Le monnayage impérial d' Asie Mineure et la statistique', in C. Carcassonne and T. Hackens (eds.), Statistics and Numismatics, PACT 5, Paris 17-19 Sept. 1979, Strasbourg 1981, pp. 252-266, esp. p.255; Johnston, A., 'Greek Imperial statistics: A commentary', Revue Numismatique 26 (1984), pp. 240-257, esp. p. 248.

⁶² Head, B.V., A Catalogue of the Greek Coins in the British Museum, Greek Coins of Caria, Cos, Rhodes etc., vol. 18, London: The Trustees of the British Museum 1897.

consider odd such an overwhelming number of coins from the mint of Rome circulating on the island. The same thought could be applied to the increased circulation of Roman Imperial bronze coins in Cyprus. Not only were the mints of Cyprus active during the Principate⁶³, but also the circulation of their coinage exceeded the restricted borders of the island, since we find Cypriote coins in areas such as Syria⁶⁴. Even if we assume that the volume of the production of coinage in these areas was rather low, the cities could 'import' civic bronze coinage from neighbouring areas⁶⁵.

If the lack of civic coinage in the above areas was not the main reason for the intrusion of so many coins from the mint of Rome in the circulation pool, we should look for other factors that could have caused this phenomenon. The main problem that we encounter in our search is the differences in the administrative, political and economic character of these regions. I found it impossible to trace similarities between them that would distinguish them from the rest of the provinces and at the same time would explain the predominance of coins coming from Rome. Therefore, I will have to restrain from any interpretation of this phenomenon, in the course of my thesis.

c) Army

As we have already seen in chapter two⁶⁶ the army played an important role in the supply and distribution of silver and gold coins, although other factors could have been of an equal or higher importance for the circulation of precious-metal coinage. It is possible that the central government issued also smaller denominations of bronze in order to facilitate the transactions of either the army or the administration⁶⁷. The following examples may suggest that the troops probably used bronze currency whether it was produced by State or by civic mints for their every day transactions.

⁶³ Hill, G.H., A Catalogue of Greek Coins in the British Museum: Greek Coins of Cyprus, vol. 24, London: The Trustees of the British Museum 1904; Grant, M., The Coinage of Tiberius in Cyprus, Melbourne: University of Melbourne 1957.

⁶⁴ Dura 12 Hoard [Table 68], Dura 7 Hoard [Table 70], Dura excavations [Table 77].

⁶⁵ For example: Macedonian coins could cover the needs of Thracian cities, coins from Carian cities could circulate in Rhodes, Pisidian coins could easily reach Pamphylia and Syrian coins could circulate in Cyprus.

⁶⁶ See chapter 2, pp.

⁶⁷ Howgego, Greek Imperial Countermarks, pp. 20-21.

Apart from the mint of Rome there seem to be other mints under imperial control in the provinces that could have played the role of an imperial centre of coin production. It has been suggested that the eastern CA coinage, mostly of *sestertii* and *dupondii*, was one of them. Although they were minted in Asia Minor, as the inscription *C(ommune) A(siae)*⁶⁸ suggests, these coins have been found in large numbers in an extensive area from south-eastern Europe to Syria. This fact indicates a circulation wider than the circulation of other Eastern civic coinages and prompts us to assume that its role was also different, especially since the volume of the production was quite low and it did not affect the number of coins that was used in the markets of the large cities in the eastern Mediterranean, such as Athens or Sardis. The existence of SC Imperial bronze coinage near the northern and eastern frontier is another phenomenon that could be explained in a similar way. There is always a possibility (as it has already been suggested) that bronze Imperial coinage was produced in order to meet the needs of Roman soldiers who were stationed in the East and eventually also travelled in the West⁶⁹.

Another series of coinage with the initials *S(enatus) C(onsulto)*⁷⁰ produced at Antioch could have served the same purpose. Unlike the short-term production of CA series, the SC coinage continued intermittently (and in small numbers) from the age of Augustus until the reign of Philip⁷¹. Another difference between the two series is that the circulation of the third century SC coins was restricted to Syria and it never reached European shores or even Asia Minor⁷². Anyhow, it has been suggested that

⁶⁸ Burnett, A.M., 'The authority to coin in the Late Republic and Early Empire', *Numismatic Chronicle*, 7th series, 147 (1977) pp. 37-63, esp. p. 47. An interpretation of the letters CA as *Caesaris Auctoritate* was suggested by Grant, M., *From Imperium to Auctoritas: A Historical Study of Aes Coinage in the Roman Empire, 49 BC – AD 14*, 1st ed. (reprinted with corrections), London: Cambridge University Press 1969, p.108. Another hypothesis that the above letters could be the initials of Caesar Augustus does not seem plausible either, Grant, op.cit. p. 108.

⁶⁹ Rodewald, *Money in the age of Tiberius*, p. 65 and note 530. Rodewald mentions that these coins were found in Antioch, Curium, Dura, Delos, Elis, Dodona, Pompei, Magdalensberg, Ajtoska Banja, northern Raetia, Mainz and Vindonissa.

⁷⁰ For the nominal authority of the Senate over the minting of bronze see Mattingly, *Roman Coins: From the Earliest Times to the Fall of the Western Empire*, 2nd ed., London: Methuen 1960, p.191; According to another interpretation by Kraft, K., 'S(enatus) C(onsulto)', *Jahrbuch für Numismatik und Geldgeschichte* 1962, pp. 7-49, esp. p. 7 SC refers to a senatorial decree conferring honours voted to Augustus from the Senate. This hypothesis was reviewed by Burnett, *The authority to coin*, p. 45, where he supports Mommsen's theory that bronze was under senatorial control.

⁷¹ Butcher, K., 'The colonial coinage of Antioch-on-the-Orontes: c. AD 218-53', *Numismatic Chronicle* 148 (1988), pp. 63-75, esp. pp. 64-65; Howgego, *Greek Imperial Countermarks*, p. 24; Rodewald, *Money in the Age of Tiberius*, p. 65.

⁷² Apart from Antioch we encounter such coin finds in Palmyra: Dumant, C., 'Les monnaies', *Le sanctuaire de Baalshamin à Palmyre: Kleifunde*, VI, Institute Suisse de Rome 1975, pp. 103-107. Also coin finds from Dura Europos: Bellinger, A.R., 'The Coins', M.I. Rostovtzeff, A.R. Bellinger, F.E.

they were issued in order to supply the troops of the Levant with small change that would resemble the character of the imperial bronze coinage⁷³. This idea sounds plausible especially because they were produced in a highly militarised area near the Eastern frontier, where the needs of the army were increasing, and also because the countermarks show that these coins were still used by the troops for a century after their issue⁷⁴. Another hypothesis, according to which the SC coins were intended for use in the collection of customs duties in Syrian caravan towns⁷⁵ is not adequately proved by the evidence. The Italian *asses* that are mentioned in the text refer to the assessment and not the payment of taxes⁷⁶. The Italic *asses* were probably used as a common standard according to which transactions in coin would be measured. Therefore we could suppose that also bronze coins from eastern mints were used.

Another phenomenon that could suggest the direct relationship of the army with the use of bronze imperial coinage is the legionary countermarks. In the east, the legions III Cyrenaica, VI Ferrata, X Fretensis, XII Fulminata and XV Apollinaris applied countermarks usually on worn coins from the reign of Nero until the reign of Lucius Verus⁷⁷. We may assume that these coins were destined for transactions conducted by soldiers or by the administration, unlike civic coins whose function was generally different, as we will see in chapter.5.

Both SC and CA coinages were probably produced under the auspices of the central Imperial mint in contrast with civic coinages that were produced by the local authorities of eastern cities, as we have already seen. Although the production of

Brown, N.P. Toll and C.B. Welles (eds.), *The Excavations at Dura, Final Report*, VI, New Haven: Yale University Press 1949, pp. 73-82, nos. 1599-1699. Also Apameia: Callu, J.P., *Les monnaies romaines, Fouilles d' Apamée de Syrie*, 8, I, Brussels 1979; Also Jerash: Bellinger, A., 'Coins from Jerash', *American Numismatic Society, Numismatic Notes and Monographs* 81, New York 1938, nos. 50-63.

⁷³ Rodewald, *Money in the Age of Tiberius*, p. 65; Howgego, C.J., 'Coinage and military finance: the imperial bronze coinage of the Augustan east', *Numismatic Chronicle* 142 (1982) pp. 1-20; Howgego, *Greek Imperial Countermarks*, pp. 21-24.

⁷⁴ Howgego, *Greek Imperial Countermarks*, p.23.

⁷⁵ Harl, K.W., *Coinage in the Roman Economy*, p. 108.

⁷⁶ The inscription, according to which Corbulo re-enacted the older provision that the custom dues at Palmyra should be payable in *denarii* or Italic *asses* has been thoroughly translated and interpreted by Matthews, J.F., 'The Tax Law of Palmyra: Evidence for Economic History in a City of the Roman East', *Journal of Roman Studies* 74 (1984), pp. 157-180. The text can be found in Cagnat, R., *Inscriptiones Graecae ad Res Romanas Pertinentes*, Rome 1906, iii, 1056 with a Latin translation; Also the Greek and Palmyrene text with Latin translation and photographs in Chabot, J.-B., *Corpus Inscriptionum Semiticarum*, II, iii, no. 3913; The text published with English translation and commentary in Cooke, G.A., *A Textbook of North Semitic Inscriptions*, 1903, no. 147, pp. 313-340; Standard publication by Dittenberger, W., *Orientis Graeci Inscriptiones Selectae*, II, 1905, no. 629.

⁷⁷ Howgego, C., 'The behaviour and function of Greek Imperial Countermarks', *Israel Numismatic Journal* 6-7 (1982-1983), pp. 47-58, esp. p. 49; Howgego, *Greek Imperial Countermarks*, pp. 17-20

civic coins was probably not destined for the payment of the army⁷⁸, it is possible that soldiers participated actively in retail trade using some of these coins in order to buy staples and other goods for their daily needs.

The only solution to our problem is to study abnormalities in the pattern of coin finds from the forts or fortresses near the Eastern frontiers, where the majority of the inhabitants were soldiers. Since the number of coins from these areas is quite low⁷⁹, we will have to rely on the results from the excavations at Dura Europos [Table 77]. Dura was a strongly defended fortress city on the desert frontier on the Euphrates from the second century until AD 252, when Shapur I ended a century of Roman occupation⁸⁰. The coins that were buried during the destruction of Dura eventually came again to light and were subsequently published by A.R. Bellinger in 1949⁸¹. A large number of coins from Peloponnesian mints which were dated to the years 202-205 because Plautilla is represented on the reverse of some of them were found among the coins from other areas⁸². Although we are aware of the date of their issue, we do not know when they arrived in Syria, since they circulated in the Peloponnese for more than half a century⁸³.

The existence in Dura of such a large number of coins from such a distant region cannot be explained with the regular commercial activities that took place within the fortress. On the contrary, an explanation for their movement towards the eastern frontier should be based mostly on the movement of troops shortly before or at the time of Caracalla's eastern expedition⁸⁴. The troops that resided until then in Greece had to move to Dura in order to reinforce the eastern defence line of the empire. As it is expected they carried with them the means for their daily transactions that happened to be local Peloponnesian issues, which were minted either in the early Severan period or even before. Specifically, two coins dated from the Antonine

⁷⁸ See chapter 5, on the reasons for the production of coinage.

⁷⁹ See chapter 2.

⁸⁰ Kennedy, D. and Riley, D., Rome's Desert Frontier from the Air, London: B.T. Batsford Limited 1990, pp. 111-114.

⁸¹ All the coins found during the excavations were published in Bellinger, A.R., 'The Coins', M.I. Rostovtzeff, A.R. Bellinger, F.E. Brown, N.P. Toll and C.B. Welles (eds.), The Excavations at Dura, Final Report, VI, New Haven: Yale University Press 1949.

⁸² See table 77 which describes the kind of coins that characterised the circulation pool by the time of the destruction of Dura.

⁸³ For the issue of Peloponnesian coins see: Grunauer-von Hoerschelmann, S., 'The Severan Emissions of the Peloponnesus', Israel Numismatic Journal 6-7 (1982-1983) pp. 38-46.

⁸⁴ Seyrig, H., 'Antiquités Syriennes: Les trouvailles de monnaies péloponésiennes en Syrie', Syria 34 (1957) pp. 249-259, esp. p.252-253; Crawford, M., 'Finance, coinage and money from the Severans to

period indicate that the coins were drawn from the existing circulation pool and the latest issues did not necessarily serve as soldier's payment⁸⁵. The fact that we do not encounter in Dura coins minted during later periods shows that the circumstances were exceptional and that the undertaking of moving troops from the Peloponnese to Syria was not repeated again. Even if a later recruitment cannot be entirely excluded, we should not suppose that its magnitude was substantial enough to influence the circulation pool.

The same hypothesis has been used to explain the high number of Pontic coins minted during the Severan period that were also found in Dura. According to the same scholar, the Pontic coins were minted before 215 AD and the soldiers who carried them could have been part of the same expedition of Caracalla⁸⁶.

There is, of course, a difference between the circulation of coins from Peloponnese and those from Pontus. Specifically, the movement of coins from the Peloponnese took place only at that time, whereas the one between Pontus and Syria was part of the normal pattern of circulation along the eastern limes. This difference could induce us to suspect that some of these coins may have been used by merchants that travelled from the northern provinces of Asia Minor towards Syria. It seems that coins minted in Syria were also found in the immediate area of Pontus and Colchis, allowing us to define an axis (north : south) in the interchange of coinage following the strategic route from Trapezous down to the eastern limes⁸⁷. The north : south axis can be verified if we study the coin finds in the museum of Sinop in Pontus, which were mostly produced in Syrian mints [Table 59].

Although the role of the army in the production of imperial bronze currency could have been significant, its role in the production of civic currency was not of the same importance. Nevertheless, in both cases the troops were an important factor in the movement of coins within a local area or even from one province to the other. Even if the soldiers were paid in silver or gold, they still needed small change for their every day transactions. The emperors, aware of this need, provided these low-denomination coins and this way they promoted retail trade in the area where troops were situated. Since soldiers participated in commercial transactions they should be

Constantine', H. Temporini (ed.), *Aufstieg und Niedergang der römischen Welt*, II, Berlin: de Gruyter 1975, pp. 560-593, esp. p. 572; Howgego, *Greek Imperial Countermarks*, p. 26.

⁸⁵ Two coins from Argos and Corinth, see table 77.

⁸⁶ Howgego, *Greek Imperial Countermarks*, p. 27-28.

considered as one of the important factors that facilitated the monetization of the militarised provinces of the Roman empire. The circulation of bronze coins in the rest of the provinces was the product of extensive trading, as we will see in the following section.

d) Trade

The importance of the army in the distribution of 'official' Roman coinage and in certain cases of civic coinage should not be overlooked. Furthermore, we cannot overlook the facts that, after the troops received their payment, they used it in order to buy goods necessary for their daily subsistence. This way they participated actively in commercial activities, which probably also involved the use of bronze currency. It is acknowledged that traders used to accompany armies. Hundreds of individuals who sought a chance for acquiring wealth were frequently in advance of armies and could also have been a vital source of information for Roman commanders⁸⁸. Commercial activities, though, were not always triggered by the presence of the army. In chapter two it has been suggested that the extent of trade in the eastern provinces was significant and that at least members of the upper class were involved in moving goods from one region to the other. Since trade could exist only in places where there is an established infrastructure that facilitates it, intermediaries, fairs or markets, acceptable currency and a surplus of products had to be created. This way a part of the population of the eastern provinces that did not necessarily belong to the upper class probably participated actively in money or other transactions.

The common means for these minor transactions were probably bronze coins minted either in Rome or in the cities of the Eastern part of the empire. An abundance of bronze coinage was revealed mostly in the cities that were thoroughly excavated. The evidence itself compels us, though, to divide the regions into three further categories according to the coins circulating in them. It has been attested that within the same area we may find: a) bronze coins issued in distant regions, b) bronze coins issued in neighbouring provinces and c) bronze coins issued in the same province or city. The case that occurs more often is the third, since bronze currency tends to

⁸⁷For the circulation of coinage in Colchis see: Golenko, K., The Monetary Circulation of Colchis during the Roman Period, Leningrad 1964.

circulate locally, although we should not exclude the first and the second case as implausible. In fact such occurrences should be detected, analysed and subsequently explained according to the different trading features of each region.

First of all, we notice that the excavations in *Cenchreai – Corinth* [Tables 27-28], *Patras* [Table 29], *Athens* [Table 30], *Curium* [Table 31], *Rhodes* [Table 39]⁸⁹, *Ankara* [Table 52], *Sardis* [Table 53], *Antioch* [Table 75] and the finds from *Fethiye* Museum in Pamphylia [Table 61] include a percentage of coin finds that were produced in mints situated in distant regions⁹⁰. Coinages from, virtually, the whole eastern Mediterranean as well as the western provinces are represented among the numerous finds. First of all we should study the reasons that forced bronze currency to travel so far, since its circulation, according to most researchers, can only be local. Even if we do not encounter these examples often, we should still try to analyse the factors responsible for the distant movements of the few bronze coins produced in distant mints and found in the above excavations.

The analysis of precious metal coinage that I undertook in the course of the second chapter could help us explain the phenomenon of bronzes travelling far. The harbours of Corinth, Patras, Athens and Rhodes present us with a common pattern in the circulation of silver coinage⁹¹. The explanation of this phenomenon was based on the fact that all these places were part of a network that facilitated inter-regional trade in the Eastern Mediterranean via sea routes. The common means of these commercial activities was probably silver or gold Roman currency or even staple products that smoothed the progress of trade throughout the Roman Empire. The pattern of silver coin finds is the same in these sites and could suggest such an assumption. Consequently, it is interesting to notice that these same harbours are characterised by a higher degree of diversity in bronze coin finds (in comparison with the diversity of coins from other areas). The rest of the regions that disclose the same characteristics -Curium, Ankara, Sardis and Antioch- are also known for their advantageous position

⁸⁸ Patterson, J., 'Trade and traders in the Roman world: scale, structure, and organisation', in H. Parkins and C. Smith (eds.), *Trade, Traders and the Ancient City*, London/ New York: Routledge 1998, pp. 149-167, esp. p. 150.

⁸⁹ A list of these coins includes the coin finds from the museum of Rhodes. The majority of them were found in the course of excavations that took place on the island of Rhodes.

⁹⁰ Dura Europos has been previously connected with military activities.

⁹¹ See chapter 2 as well as above. The only site that does not demonstrate the same diversity as Athens, Corinth, Patras and Rhodes is Ephesus. The coins found in the excavation came mostly from western Asia Minor, Ephesus itself and Rome. The archaeologists did not find any bronze coins minted in either in Syria or in Greece.

that made long-distance trade possible, although they are not necessarily connected with the above Aegean sites.

Especially Ankara (as well as Caesarea, Taviu and Amaseia) that did not have access to the Mediterranean was, in fact a key point of the eastern part of the advanced road system that would allow the easy movement of merchants⁹². It seems also that Sardis was probably another path that facilitated the movement of merchants towards western Asia Minor. Milestones found on the road to the harbours of the west⁹³ could indicate the existence of army that could have also been followed by traders. Cyprus, on the other hand, was situated on the sea routes that connected the harbours of Syria and southern Asia Minor with the harbours of Greece⁹⁴. Another important trade centre was the wealthy city of Antioch that became a 'city known to the world'⁹⁵. By the fourth century AD far eastern goods could only enter the Roman empire by one of two routes: either across Northern Syria or up the Red Sea. Some of this trade reached the Mediterranean via Antioch and the valley of the Orontes. A large number of travellers coming from China, India, Scythia and Persia probably lodged in hostelries outside the city gate before they continued their trip⁹⁶.

We cannot exclude the possibility that bronze coins were used along with the precious metal coins during these trips. Although silver and bronze currency served different purposes, the use of the first did not prohibit the simultaneous or subsequent use of the second. In reality, one currency complemented the other and together they formed a complex monetary system that enabled the inhabitants to conclude both major as well as minor transactions. Rich merchants that travelled within the Empire were probably compelled to carry both silver and gold for their business dealings and bronze for their daily needs. It is also likely that a merchant that travels for days or weeks either alone or with his servants will need to lodge during the night, probably in a *taberna*. Eventually he will also need food for him or hay for his horses or even

⁹² Mitchell, S., Anatolia: Land Men and Gods in Asia Minor, Oxford: Clarendon Press 1993, p.132 and p. 129, map 8; See also French, D., Roman Roads and Milestones of Asia Minor: An Interim Catalogue of Milestones, II, British Institute of Archaeology at Ankara, Monograph no. 9, BAR International Series 392 (ii), Oxford 1988, Map 4.

⁹³ French, Roman Roads and Milestones, map 11. The importance of Sardis in long-distance two-way trade of luxury materials with other regions is established in Waldbaum, J.C., Metalwork from Sardis: The Finds through 1974, Cambridge/London: Harvard University Press 1983, p. 11.

⁹⁴ Maier, G., Cyprus: From the Earliest time to the Present Day, London: Elek Books Ltd 1968, refers to old established trade contacts of the island with India, South Arabia, Italy and the West, which continue to flourish during the Roman Principate.

⁹⁵ Ammianus 14. 8. 8 'mundo cognita civitas'.

clothing. All these minor expenses cannot always be paid in high-denomination coins, therefore the traveller is obliged to carry with him lower denominations in the form of bronze currency. Such coins could be carried from Greece to Asia Minor and Syria or vice versa and they represent as a rule the 'leftovers' of civic issues that were already used during the trip either in the city of their production or in neighbouring regions.

Our second case consists of regions where more than five bronze coins minted in neighbouring provinces have been found. Such areas are: *Thessaly* [Excavations - Table 25, Volos Museum - Table 32]⁹⁷, *Delphi* [Museum - Table 33], *Thrace* [Kavala Museum - Table 34, Komotene Museum - Table 35]⁹⁸, *Thessalonica* [Museum - Table 36]⁹⁹, *Corfu* [Museum - Table 38], *Ephesus* [Excavations- Table 49], *Troas* [Troy excavations - Table 50], *Pamphylia* [Pamphylia Hoard - Table 47, Side Excavations - Table 56], *Mysia* [Pergamos Excavations - Table 48], *Caria* [Aphrodisias Excavations - Table 51], *Pisidia* [Sagalassus Excavations - Table 57], *Pontus* [Tokat Museum - Table 60], *Phrygia* [Afyon Museum - Table 62], *Syria* [Migdal Hoard - Table 63, Jerusalem Excavations - Table 72, Gerasa Excavations - Table 78]. Although the number of coins that comes from neighbouring provinces is not large, it indicates that the inhabitants of different regions were in contact with each other and that they were also involved in minor commercial transactions. Moreover, the scale of this inter-regional contact may not have been extensive enough to suggest frequent business dealings, but these few bronze coins could indicate an economic activity of some sort that was not prohibited by geographical or administrative boundaries.

The rest of the provinces, where only locally minted coins circulated, belongs to the third case. These are: *Epirus* [Plaka and Palaio and Nicopolis Hoards- Tables 1, 2 and 3, Yiannena Museum - Table 37], *Achaea*¹⁰⁰ [Corinth 2 Hoard - Table 5, Sparta Hoard - Table 6, Eleusis Hoard - Table 7, Athens 1 Hoard - Table 8, Argos

⁹⁶ Liebeschuetz, J.H.W.G., *Antioch: City and Imperial Administration in the Later Roman Empire*, Oxford: Clarendon Press 1972, pp. 76-77.

⁹⁷ Rescue excavations and museum finds are treated as one.

⁹⁸ The two museums are in the same area therefore they should be treated as one.

⁹⁹ Although the coin hoards show that the coins circulating in Macedonia were produced within the province.

¹⁰⁰ Corinth and Kenchreai excavations, and Athens excavations belong to the group of sites with the high diversity of coins. In general, it seems that coin hoards contain homogeneous coins in contrast with the variety of bronzes that are usually found in the agora of a city. In this case we should take into consideration the factor of the single owner of the hoard who lives and works within a certain area and who may not be a trader.

and Lechaion Excavations – Table 26], *Macedonia* [Koufalia, Kilkis, Leukochori, Peristerona, Amphipolis, Serrai, Macedonia 1, Macedonia 2, Sevaste 1, Sevaste 2, Methone, Siderokastro, Serrai 2, Strymon, Macedonia 3 Hoards – Tables 9-19 and 21-24]¹⁰¹, *Troas* [Troy 3 and 4 Hoards – Tables 40 and 41]¹⁰², *Cilicia* [Ayvagedigi, Cilicia Hoards – Tables 42, 43, Tarsus excavations – Table 54], *Taurus Mountains* [Gulek Bogazi Hoard – Table 44], *Phrygia* [Cibyra Hoard – Table 45], *Pamphylia* [Perge Excavations – Table 55], *Syria* [Silat Hoard – Table 64, Samaria Excavations – Table 71, Sepphoris Excavations – Table 73, Hama Excavations – Table 74, Palmyra Excavations¹⁰³ – Table 76, Cappaernaum Excavations – Table 79]. The above evidence allows us to suggest that these areas were more isolated, commercially, than the previous ones. If coins from distant areas were not found, we could assume that people from distant provinces did not conduct any money transactions there often. There is no way to find out whether this isolation took place because these provinces were more self-sufficient or because the merchants avoided them because of the lack of profit.

The three different categories of coin-patterns in different regions may remind us of the different categories of fairs and markets in the eastern part of the empire¹⁰⁴. First of all, interregional fairs that lasted for as long as 6 or 8 weeks attracted merchants from far away areas (500-1000 km) and were dominated by highly expensive types of products. Coins found in our first category of individual regions could belong to people who participated in such fairs and were willing to travel exceptionally long distances to sell their goods. Although local producers could often use the opportunity to sell their merchandise, the coins that were found in areas well over 1000 km from the city where they were minted indicate that interregional travels were possible. Of course, we should take into consideration that the number of these

¹⁰¹ The bronze coins in the Museum of Thessalonica come mostly from Macedonia apart from a few that come from Thrace. The difference of pattern between the museum-finds and coin hoards should be explained as in note 97.

¹⁰² The structural differences between coin hoards and coin finds from the excavation in Troy should be explained as in note 97.

¹⁰³ We have seen in chapter 2 that Palmyra used to be an important center for long distance trade. The contradictory view given by the bronze coins should be attributed to the low number of coins recovered in the course of the excavations in the area.

¹⁰⁴ The categorisation of fairs and markets was carried out by De Ligt, L., *Fairs and Markets in the Roman Empire: Economic and Social Aspects of Periodic Trade in Pre-Industrial Society*, The Netherlands: J.C. Gieben 1993; An earlier attempt to categorise trade was made by Hopkins, K., "Models, ships and staples", P. Garnsey and C. R. Whittaker (eds.), *Trade and Famine in Classical Antiquity*, Cambridge: The Cambridge Philological Society 1983, pp. 84-109. He specifically divides

coins from distant parts is quite low, while the rest come from neighbouring regions or even the same province.

Secondly, regional fairs that lasted for one or two weeks tended to attract people from regions as far as 300 km. These fairs took place in the rural countryside or in the cities of the interior of the empire or in maritime cities. The volume of goods that was exchanged there between merchants and specialised producers was facilitated by the bronze and silver coinage in circulation. Since the merchants came from different regions the structure of the coins that they used probably belonged to different circulation pools. The cities or regions that belong to our second category may have been centres of such regional exchange of products. The number of coins that indicates the conduct of regional trade is small compared to the coins that were minted in neighbouring cities.

Thirdly, local fairs were relatively small-scale commercial gatherings catering to the needs of the population of a restricted geographical area. They could have been held either in cities or in the countryside and they attracted local producers and buyers that were interested in buying and selling rural products or urban-produced cloth and ornaments. The last category of regions, where coins minted in the immediate area have been found, indicates that only local transactions took place. Although the existence of only local civic coins in a site may have been accidental (our sample is quite small), there is the possibility that some of these areas became self-sufficient because of their geographical or other type of isolation. Furthermore, periodic markets could also have attracted both rural and urban populations who lived in the surrounding area. These markets could take place once, twice or several times a month within the cities or in the rural countryside or in estates. They were economically important for the area and they were carefully regulated by the local magistrates.

Although markets and fairs took place in both cities and countryside, the degree of trade within these two areas may have been different. Such differences were explained by the theoretical concept of the 'consumer city' as it has been first established by M. Weber¹⁰⁵ at the beginning of the twentieth century. According to his theory the cities during the Greco-roman period depended on the exploitation of

trade into three categories: a) long-distance or interregional trade, b) medium-range or intra-regional or inter-town trade and c) short haul, or local trade between the countryside and a nearby market town.

their hinterlands by imposing rents and taxes to the population that lived in the country. Since their final aim was that of regional self-sufficiency, there was little need for development, urban manufacturing and inter-regional trade. Modern historians could neither dismiss nor entirely accept these views, since it is extremely difficult to prove them one way or another. They tried, though, to criticise, analyse and improve some aspects of the above theory and finally found themselves divided in two camps: the ones for the 'consumer city'¹⁰⁶ and the ones against it¹⁰⁷.

The numismatic evidence of this thesis could not be distinguished between those that came from urban centres or those from the countryside, therefore it is impossible to reach definite conclusions that would prove or disprove the model of the 'consumer city'. There are, though, other studies based on epigraphic material and literature sources that allow us to define the extent of trade between city and countryside and trace the possible differences, if any. The first attempt was made by F. Millar almost twenty years ago, when he published an article on the *Metamorphosis of Apuleius*¹⁰⁸. According to this work, direct production in order to achieve self-sufficiency was characteristic mostly of the richer households, while the rest of the population relied on commercial transactions for meeting the necessities of life. The inhabitants of the Greek countryside were not entirely absorbed by agricultural activities and they seemed to participate enthusiastically in trade, while they used coins extensively for their transactions. Another study¹⁰⁹ concerning the

¹⁰⁵ Weber, M., *Agraverhältnisse im Altertum*, Tübingen 1909, *The Agrarian Sociology of Ancient Civilizations*, transl. in English, London 1976.

¹⁰⁶ Finley, M., 'Max Weber and the Greek state', Finley, M. (ed.), *Ancient History: Evidence and Models*, London 1985, pp. 88-103; Finley, M., *The Ancient Economy*, 2nd ed., London 1985; Jongman, W., *The Economy and Society of Pompeii*, Amsterdam 1988; Whittaker, C. R., 'The 'consumer city' revisited: the *vicus* and the city', *Journal of Roman Archaeology* 3 (1990) pp. 110-118; Whittaker, C.R., 'Do theories of the ancient city matter?', in T.J. Cornell and H.K. Lomas (eds.), *Urban Society in Roman Italy*, London: University College London Press 1993, pp. 1-20.

¹⁰⁷ Hopkins, K., 'Economic growth and towns in classical antiquity', in P. Abrams and E. Wrigley (eds.), *Towns in Societies*, Cambridge 1978, pp. 35-79; Hopkins, K., 'Taxes and trade in the Roman empire', *Journal of Roman Studies* 70 (1980), pp. 101-125; Wallace-Hadrill, A., 'Elites and trade in the Roman town', in J. Rich and A. Wallace-Hadrill (eds.), *City and Country in the Ancient World*, Leicester-Nottingham Studies in Ancient Society 2, London 1991; Leveau, P. and C. Goudineau, 'La ville antique: "ville de consommation?"', *Etudes Rurales*, 89-91 (1983), pp. 275-289; Mattingly, D.J., 'Beyond belief? Drawing a line beneath the consumer city', in H.M. Parkins (ed.), *Roman Urbanism: Beyond the Consumer City*, London: Routledge 1997, pp. 210-218; Parkins, H., 'The 'consumer city' domesticated? The Roman city in elite economic strategies', in H.M. Parkins (ed.), *Roman Urbanism: Beyond the Consumer City*, London: Routledge 1997, pp. 83-111.

¹⁰⁸ Millar, F., 'The world of golden ass', *Journal of Roman Studies*, 71 (1981), pp. 63-75, esp. pp. 72-74.

¹⁰⁹ De Ligt, L., 'Demand, supply, distribution: The Roman peasantry between town and countryside: Rural monetization and peasant demand', *Münstersche Beiträge zur antiken Handelsgeschichte* 9 (1990), pp. 24-56; De Ligt, L., 'The Roman peasantry demand, supply, distribution between town and

Roman East confirmed that there was a peasant demand not only for food, cattle and land but also for manufactured goods and services of various kinds. These specialised goods were not necessarily acquired through urban-rural trade. In fact, clusters of villages tended to produce the goods that were used in the countryside and sometimes were even bought by the inhabitants of the cities during periodic markets.

The above evidence demonstrates that trade was one of the most important economic activities of the inhabitants of the eastern Roman empire. The scale of commercial activities, though, differed from one region to another according to the local conditions and the consequent needs of the population. An attempt has been made to divide the areas where inter-regional trade occurred in comparison with other regions where trade remained confined to a small area. Regrettably, the geographical borders between these regions are not clearly defined mainly because of the lack of detailed data; hopefully, they will be recovered in the future through systematic excavations.

CONCLUSIONS

The large number of civic mints responsible for the production of bronze currency and its distribution within the provinces of the eastern Roman empire seemed to be one of the factors that formed local circulation pools. Magistrates of the various cities undertook the task of the administration of the mints and they promoted the production of coins that would be used in the markets of the immediate region of the city and its countryside. Other administrative structures that could have created uniform circulation pools over wider areas, failed to affect significantly the circulation of coins. The only central organisation that could send its coins on longer distances was the State that ran the mainstream mints, whether they were situated in Italy or in Syria. Coins that were minted in Rome were found in lesser numbers almost in every eastern province and they became the regular feature of individual circulation pools.

The army, on the other hand, played an important role in the distribution of bronze coinage. Although soldiers were paid mainly in precious metal coins or in certain cases in bronze coins that were produced in mainstream mints, we cannot exclude the possibility that they were also using civic coins for their daily

countryside II: Supply, distribution and a comparative perspective', *Münstersche Beiträge zur antiken Handelsgeschichte* 10 (1991), pp. 33-77

transactions. Since they came in contact with the local populations they had the opportunity to visit local markets and exchange their silver *denarii* with local issues, so that they could buy various products from the peasants. Eventually the movement of these soldiers could cause the simultaneous movement of coins in the new distant fortress, as they carried them in their purses.

Finally, trade could cause the movement of bronze coins in distant areas, even if small denominations usually do not facilitate inter-regional transactions. Local markets and fairs promoted the use of coins that came mostly from neighbouring mints, sometimes from mints located in different provinces and rarely from distant mints. The circulation pools that were eventually created through this process were small and had individual characteristics that allow no comparisons, since local conditions affected them widely. There is, though, a common characteristic that we should consider carefully. In every case the establishment of fairs and markets in the area and the merchants that visited them played the most important role in the movement of coins. The Roman empire seems to have been a wide network within which regions and local populations interacted with each other in order to cover their needs and increase their profits.

THE PRODUCTION OF BRONZE COINAGE

INTRODUCTION

In the previous chapter we analyzed the spatial distribution of the bronze coinage circulating in Greece, Asia Minor and Syria during the second and the third centuries and we also tried to study the factors that affected the circulation of coinage in the East. Our next step is to try to locate variations in the volume of production of both civic and official bronze coinage during the different reigns. As we have already seen in chapter three the volume of silver currency increased rapidly during the third century, mainly because the emperor wanted to increase his revenue in order to pay for his military and other expenses. Septimius Severus and Caracalla were responsible not only for the large volume of precious metal coinage in circulation but also for the severe manipulation of the coinage. Their successors followed the same monetary policy in order to maintain their power and stay on the throne but their actions eventually caused the transformation of the monetary system. The currency changes affected not only the gold and silver coinage but also the bronze issues.

The study of the production of civic as well as official issues is essential if we want to understand the reasons that caused the end of the civic coinages in the middle of the third century. A wider analysis will also provide information on the financial situation of the cities of Greece, Asia Minor and Syria, while we will be able to examine individual economic phenomena. The problems related especially with the study of civic bronzes from Asia Minor have been firstly noted by W. Leschhorn, who tried in the 1980s to carry out a statistical analysis of the mints of Asia Minor and their issues, as they are listed in various numismatic catalogues. The most important of these problems is the lack of publications that could help us identify the coins according to the year or even the reign of their issue. For example, the coins of Smyrna without the bust of the emperor reached during the first century 29%, during the second century 58,7% and during the third century 34,3%. It is evident that the results of the statistical analysis may change when these coins are finally dated and included in our research¹.

¹ Leschhorn, W., 'Die kaiserzeitlichen Münzen Kleinasiens: Zu den Möglichkeiten und Schwierigkeiten ihrer statistischen Erfassung', *Revue Numismatique* 27 (1985) pp. 200-216, esp. p. 211.

Although the methodological problems are evident there is always room for the use of statistics as long as we keep in mind the restrictions that ancient material imposes on researchers. We will probably never be able to rely on specific numbers because the evidence coming from the Roman empire will always be scanty and inadequate; archaeology is a science that studies only a small amount of the rubbish that ancient populations left behind them. The study of the facts and events that contributed to the formation of economic history can only suggest (not prove) the existence of ancient economic structures. In this chapter I intend to produce histograms (percentages of coins produced per annum) that will describe the numismatic material found in excavations or in local museums or within hoards. Since the sample will only indicate the increasing mint output during the third century, we should try to connect this increase with the political, economic and military events that characterized the era. We should also try to find out the possible effects of the monetary changes on the everyday life of the population of the eastern Roman empire. Before reaching a conclusion on the reasons that caused these changes, we should try to describe the nature of the changes themselves and we should place them within their historical context. First of all, I will present the evidence that indicates an increase in the volume of bronze coinage during the first half of the third century AD.

NUMISMATIC EVIDENCE

Numismatic data can give us information about the circulation of coins in an area, the mints where they were produced and the volume of this production either locally or throughout the empire. The obverse or the reverse side of the coin includes the ethnic of the city that minted it or the symbol of the mint itself, or even the name of the magistrate who was responsible for the production. The mints that issued bronze coinage could be divided in two general categories: a) Mainstream (or state) mints, e.g. Rome, Antioch, Milan etc. and b) Civic mints, e.g. Smyrna, Ephesus, Athens etc. The state mints produced coins that were intended to cover the needs of the emperor, regarding his military and administrative mechanism, for payments in coined money. Civic mints, on the other hand, were probably administered by local authorities designing their bronze coinage in a way that would cover the local needs

of the citizens who lived either in the city or its neighbouring areas and that would facilitate economic transactions in a specific area².

Modern researchers have for some time attempted to estimate the fluctuations in mint output during the Principate. Although different approaches potentially give different results, all scholars finally agree that the production of both silver and bronze coinage increased substantially during the Severan period. T.B. Jones³ was the first to attempt a detailed analysis of the evidence that came from excavations from the eastern provinces. First of all, he calculated approximately the numbers of mints in every province of Greece, Asia Minor and Syria according to individual reigns. The use of a series of graphs allowed him to conclude that the actual number of Greek imperial mints reached its peak under the Severi and then declined to about the level of the Augustan age by the beginning of the reign of Valerian. His views are explained by the charts that describe the number of mints in Asia Minor, Syria and Greece [charts 43, 47, 49]. The peaks occur during the reigns of Septimius Severus and Caracalla and they continue at almost the same height until the middle of the third century. Since the results are not as obvious on the chart of Asia Minor, [chart 44] I decided to present the sum of all the regions (including the province of Cilicia⁴). It seems that during the reign of Septimius Severus the number of local mints reached its highest peak (232 local mints).

As we have already mentioned, the production of coins was intermittent and in some cases completely irregular. The process of counting mints in order to estimate increases in the production of coinage could cause additional methodological problems because each reign was of different length; therefore we should expect more mints during longer reigns and fewer mints during shorter reigns. The following charts estimate the number of mints per annum (number of mints: years of reign) [charts 45, 48, 50] and they demonstrate an increase of mints during the reign of Macrinus, while during the reigns of Septimius Severus and Caracalla they remained at almost the same level as the mints that were active during the Antonine period. This structure seems to be completely different from the structure of charts 43, 44, 47

² See chapter 4 on the authorities for the production of bronze coinage.

³ Jones, T.B., 'A numismatic riddle: The so-called Greek Imperials', Proceedings of the American Philosophical Society, New York, vol. 107, no. 4, August 1967, pp. 308-347. For a list of mints in each province see: Jones, T.B., 'Greek Imperial coins', The Voice of the Turtle, vol.4, no. 12, Dec. 1965, pp. 295-301 and 308.

and 49 on which T.B.Jones based his results. Higher or lower peaks of mints followed until the middle of the third century. In both cases, though, we encounter the following problem: the proliferation of mints does not necessarily mean proliferation of coins. It is probable that some mints may have issued only a few series while others issued numerous coins.

Another attempt to estimate the production of local coinage was made by J.-P. Callu, who noted the number of types and number of coins, as they appear in numismatic catalogues⁵. It has been impossible to use his results in this thesis mainly for three reasons: A) There is only a small sample of mints, B) There are no examples from the Antonine era, therefore no comparisons could take place, C) He does not divide the coins according to reigns but according to periods that do not overlap with my division.

Probably the most recent attempt to calculate the volume of mint output in the eastern provinces was conducted by W. Leschhorn for the coinage of Asia Minor⁶. Although I acknowledge the problems of this research⁷, I think I can use most of his results as part of my thesis. Leschhorn's chart on the number of mints in Asia Minor could be used as a corrected form of the chart that was presented by T.B. Jones⁸, although his analysis has the same problems as the analysis of T.B. Jones [chart 51]. The estimation of the number of mints per annum shows increased activity from the reign of Macrinus onwards [chart 52]. These results should not be interpreted as the establishment of new mints⁹, but as the issue of new coins from mints that were already active in the past. It just happened that all the existing mints decided to put into circulation new issues simultaneously. One possible explanation is the production of accession issues by every mint of the empire in order to honor the new

⁴ Although the structure of coin hoards and excavation finds from Cilicia demonstrate strong similarities with the coin finds from Roman Syria, I included its mints into chart A1. The purpose of such an inclusion is to show the exact number of the mints as T.B. Jones studied them.

⁵ Callu, J.-P., *La politique monétaire des empereurs romains de 238 à 311*, Paris: E. de Boccard 1969, pp. 15-29.

⁶ Leschhorn, W., 'Le monnayage impérial d' Asie Mineure et la statistique', C. Carcassonne and T. Hackens (eds.), *Statistics and Numismatics*, PACT 5, Paris 17-19 Sept. 1979, Strasbourg 1981, pp. 252-266.

⁷ Review by: Johnston, A., 'Greek Imperial statistics: A commentary', *Revue Numismatique*, 26 (1984), pp. 240-257.

⁸ Leschhorn adds the mints of Aeolis and Lesbos. Furthermore, he uses the results of: Kryzanowska, A., *Monnaies coloniales d' Antioche de Pisidie*, Warsaw: Editiones scientifiques de Pologne 1970, table 2; Callu, J.-P., *La politique monétaire*, p. 14; Carson, R.A.G., *Coins of the Roman Empire in the British Museum: Severus Alexander to Balbinus and Pupienus*, vol. VI, London: Trustees of the British Museum 1962, pp. 10 ff.; Thiele, W., 'Praegestaeten unter Severus Alexander', *Journal international d' archeologie numismatique*, 10 (1907), pp. 311-332, table no. 1 and chart no.1.

emperor. Therefore, during the reign of Macrinus, that lasted only one year and presents the highest peak, all mints in Asia Minor produced at least one issue. This should also explain why shorter reigns are better represented than longer ones. Local mints continued the production of civic coins until the end of the reign of Gallienus¹⁰, by which time the number of mints was reduced and the civic coinage came to an end.

Another way to establish why the mint output increased during the reigns of Septimius Severus and Caracalla is the statistical analysis of the coins as they are found in numismatic catalogues¹¹. The total of 20.000 coins analyzed by Leschhorn indicates a substantial peak in the volume of local coinage during the reigns of Septimius Severus and Caracalla and smaller peaks during the reigns of Commodus, Severus Alexander, Gordian III, Philip the Arab and finally Trebonianus Gallus, to fade away by the reign of Tacitus¹². Almost the same results emerge from the study of individual mints such as Dion¹³ or Smyrna¹⁴ or Mylasa¹⁵. First of all, the production of the mint of Dion shows a gradual increase from the reign of Antoninus Pius until the reign of Elagabalus when the volume forms its highest peak. Another high peak exists during the reign of Maximinus after whose reign a gradual decline starts until the reign of Gallienus when a smaller peak is formed [chart 53]. Secondly, the coin output of Smyrna shows an increase in production during the reign of Septimius Severus, although it reaches its highest peak during the reign of Gordian III [chart 54]. Also, the coins issued from the city of Mylasa imply an increase in mint output during the period in question, since they form important peaks during the reigns of Septimius Severus/Caracalla and Gordian III [chart 55].

The information that numismatic catalogues and museums may give us is not wholly reliable evidence. As we have already seen in the first chapter, collectors and

⁹ For new mints per reign see Leschhorn, 'Le monnayage impérial', p. 259, chart no.3.

¹⁰ For the end of mints see Leschhorn, 'Le monnayage impérial', p. 261, chart no. 4.

¹¹ Leschhorn used the following catalogues: *Sylloge Nummorum Graecorum*, Deutschland, Sammlung von Aulock, 18 fasc., Berlin, 1957-1968; *Sylloge Nummorum Graecorum*, Danish National Museum, Copenhagen, 1942 ff.; *A Catalogue of the Greek Coins in the British Museum*, 29 vol., London 1873-1927; MacDonald, G., *Catalogue of Greek Coins in the Hunterian Collection*, vol. II, Glasgow, 1901; Grose, S.W., *Catalogue of the MacClean Collection of Greek Coins in the Fitzwilliam Museum*, vol. III, Cambridge: Cambridge University Press 1929; *Sylloge Nummorum Graecorum*, vol. IV: Fitzwilliam Museum, Leake and General Collections, part VI-VII, London, 1965-1967; Babelon, E., *Inventaire sommaire de la Collection Waddington*, Paris 1897.

¹² Leschhorn, 'Le monnayage impérial', p. 262, chart no. 5.

¹³ Kremmydi-Sisilianou, S., *Η νομισματοκοπία της ρωμαϊκής επαρχίας του Δίου*, Athens: Ελληνική Νομισματική Εταιρεία 1996, p. 35.

¹⁴ Klose, D.O.A., *Die Münzprägung von Smyrna in der römischen Kaiserzeit*, Berlin 1987, pp. 100-102.

¹⁵ Akarca, A., *Les monnaies grecques de Mylasa*, Paris: Maisonneuve 1959, pp.66 ff.

museum directors tend to buy or accumulate more rare and expensive coins instead of cheap or worn bronzes. T.B. Jones and other researchers who decided to analyze the contents of collections in order to study the Roman economy had to face various methodological problems that have already been mentioned above. Since the numismatic material that comes from either private or public collections is not necessarily representative of the circulation of coinage or of mint output, we should seek a different type of numismatic evidence. The coins found within the context of an excavation or a coin hoard or local museums are considered more trustworthy.

Coin hoards could give us indications on the volume of production of coinage, although the fact that no bronze hoards have been recovered does not necessarily mean that no bronze coins were produced. Actually, no bronze coin hoards that were buried during the Antonine period in either Asia Minor or Syria have been found. The reason for their absence is probably the repeated withdrawal and re-striking of worn coins. If bullion coming from mints was not available, then the cities would probably use the bronze coins that were already in circulation in order to produce new issues. A small bronze hoard (20 bronze coins and 3 *denarii*), that comes from Sebaste Pierias in Greece, probably survived because it was buried in a tomb¹⁶.

Only one bronze hoard that was lost during the Severan period has been found in Asia Minor: Asia Minor Hoard¹⁷. The coins belong mostly to the reigns of Septimius Severus and Caracalla, while only a small percentage of 0,95 % belongs to the reign of Commodus. We have no information on the exact place of the origin of Asia Minor Hoard and since there is no identification of the mints as they are represented in the hoard, we cannot make assumptions about the level of production in any individual province. Another hoard of bronze coins, the Migdal Hoard, which begins during the reign of Titus and ends with the reign of Macrinus, comes from Syria¹⁸. Most of the emperors are represented only by a handful of coins apart from Caracalla, although the bulk of the coins belong to the reign of Macrinus. The fact that most of the coins belong to the reign just before the hoard was lost allows us to suggest that earlier coinage was withdrawn from circulation. No Severan bronze hoards come from Greece.

¹⁶ See chart 56.

¹⁷ For its structure see chart 57.

¹⁸ See chart 58.

The period of Military Anarchy produced far more hoards than previous periods (Antonine and Severan) of lesser length. Five bronze hoards that come from different areas of Asia Minor presents us with different characteristics. First of all, the Gulek Bogazi Hoard was found in the Taurus Mountains and demonstrates high peaks of coinage per year during the reigns of Elagabalus, Severus Alexander and Gordian III and smaller peaks during the reigns of Severus/Caracalla, Macrinus and Maximinus. All the coins are attributed to the mint of Caesarea Cappadociae. Secondly, the Troy 3 and Troy 4 Hoards demonstrate a different structure. Although they are not identical, they both are characterised by peaks during Caracalla's and Elagabalus' reigns. Their highest peak occurs during the reign of Trebonianus Gallus, followed by an abrupt decrease until the reign of Valerian. Troy 4 hoard also forms peaks during the reigns of Severus Alexander, Maximinus and Gallienus. Thirdly, Ayvagedigi Hoard and Cilicia Hoard are quite similar to each other. Both of them were found in the southern province of Asia Minor, Cilicia. The number of coins increased during the reign of Maximinus in order to form its highest peak during the reigns of Gordian III, Philip the Arab and Trajan Decius [chart 59].

Another bronze hoard from Pamphylia that belongs to a slightly later period presents almost the same characteristics. The coinage that the hoard contains represents most of the reigns from Domitian to 275 AD. Only a slight increase takes place during the reigns of Severus/Caracalla until the reign of Gordian III. The coinage abruptly forms high peaks during the reigns of Philip (17,34% per annum), Trajan Decius (28,35%) and Trebonianus Gallus (23,35%) [chart 60].

During the Military Anarchy period (Gordian III until Gallienus) seven hoards, which included mainly bronze coins, were buried in Syria. Only one of them came from Western Syria (Silat) while the rest were found in Dura Europos (Dura Europos 7, Dura Europos 9, Dura Europos 10, Dura Europos 11, Dura Europos 12, Dura Europos 13). Although the main bulk of coinage represents the emperors of the Severan dynasty and the Military Anarchy period, almost all of them contain coins from earlier dynasties. We see a small rise during the reign of Septimius Severus/Caracalla in most of the hoards (Dura Europos 10, Dura Europos 13, Dura Europos 7, Dura Europos 12, Dura Europos 11). During the reign of Macrinus all of them (apart from Dura Europos 10) decline completely. They form peaks again during the reign of Elagabalus, and this time Silat hoard joins them. During the reign of Severus Alexander four of them form peaks (Dura Europos 11, Dura Europos 13,

Dura Europos 12, Dura Europos 7), while three decline (Dura Europos 10, Silat, Dura Europos 9). There are almost no coins representing the reign of Maximinus in any of the hoards, while five hoards form their highest peak during the reign of Gordian III (Dura Europos 10, Dura Europos 7, Dura Europos 11, Dura Europos 13, Dura Europos 12). Dura Europos 9 hoard instead forms its highest peak during the reign of Philip, while all the others form smaller peaks. All the hoards that come from Dura finally decline some time between the reigns of Trebonianus Gallus and Gallienus. Silat hoard starts rising gradually from the reign of Philip so that it reaches its highest peak during the reign of Trebonianus Gallus [chart 61].

The numerous bronze hoards that were found in Greece illustrate a complicated picture, although at the same time they present some common characteristics. First of all, they include coins from the Antonine period, a phenomenon that we have already seen in the hoards that come from the provinces of Syria. Small peaks of coinage are obvious during the reigns of Marcus Aurelius and Caracalla, while the height as well as the density of the peaks increases from the reigns of Septimius Severus/Caracalla onward. We observe the existence of higher or smaller peaks throughout the Severan and the Military Anarchy period. Another common characteristic of most of the hoards is that they consist mainly of coins that were minted during the reigns of Elagabalus and Gordian III. There are, of course, a few hoards, whose highest peaks are formed during the reigns of Trebonianus Gallus and Valerian/Gallienus [chart 62].

For reasons that I already explained in chapter one I decided to analyse the numismatic evidence that comes from excavations with the help of histograms instead of cumulative charts¹⁹. The comparative analysis of the site finds from Asia Minor could show us that there are no obvious patterns and that every site has more or less its own individual characteristics. However there are some general similarities. In the following chart I used the coins that were found in the course of 11 different excavations from which come 18 coins or more: Pergamos, Tarsus, Troy, Ephesus, Sardis, Aphrodisias, Side and Sagalassus²⁰ and Ankara, Kultepe, Perge²¹. Most of the excavation finds demonstrate even distribution of coinage throughout the Antonine period. The distribution becomes uneven during the reigns of Septimius

¹⁹ See chapter one for the reasons behind such a choice.

²⁰ All of these excavations were systematic, although the number of coins that were recovered from Aphrodisias and Tarsus may have been low.

Severus/Caracalla, when the first substantial peak in the volume of coinage is formed. The majority of the excavation finds shapes peaks also during the reigns of Elagabalus, Gordian III, Trajan Decius and Valerian/Gallienus. The exceptions of Kultepe and Perge that form exceptionally high peaks during the reign of Elagabalus could be easily explained if we take into consideration the low number of coins that were found in the excavations. It is probable that new finds will change the results. The high peaks in the volume of coinage from Aphrodisias and Tarsus during the reigns of Gallienus and Macrinus respectively could also easily be explained, since the excavations covered only a small part of the city. The small number of coins that was recovered is not representative of the magnitude of the above cities and the results will probably alter if the excavations continue [chart 63].

Excavations in Syria also (Gerasa, Antioch, Hama, Palmyra, Sepphoris, Samaria, Capharnaum) suggest that the low output and the even distribution of coinage during the Antonine dynasty changed completely during the Severan dynasty. The volume of coinage rose during the reigns of Septimius Severus/Caracalla and the excavations form high peaks throughout the Severan period until the reign of Severus Alexander. Most excavations demonstrate increased production of coinage during the reign of Elagabalus. Subsequently the number of coin finds decline to increase again during the reign of Philip until the reign of Gallienus. The coinage from Palmyra and Gerasa forms its highest peak during the reign of Philip, Sepphoris shows an increased concentration of coins during the reign of Trajan Decius, coins from Samaria, Antioch and Hama increase during the reign of Trebonianus Gallus, and Capharnaum and Palmyra form their high peaks during the reign of Gallienus [chart 64].

Dura Europos is one of the sites that not only was excavated with extreme care but also gives an idea of the circulation of coinage in the fortress in the middle of the third century, since the city was abandoned in haste after it fell under Sassanid rule. The period of the Antonine emperors is represented by a few coins only and is characterised by the even distribution of coinage. We can see clearly, though, a peak during the reigns of Septimius Severus/Caracalla that rises to reach an even higher peak during the reign of Elagabalus. The increased production continues throughout the reign of Severus Alexander until it declines during the reign of Maximinus. The

²¹ These last three rescue excavations yielded only a few coins.

highest peak of the coins that were found in Dura Europos is formed during the reign of Gordian III. Subsequently it declines gradually until the reign of Valerian [chart 65].

The excavations in Greece (Patras, Argos/Lechaion, Thessally, Cenchreai, Corinth²²) demonstrate also regional differences, although there are common patterns. Unlike the coins from the excavations of Asia Minor and Syria, where the output seems to have been low, the volume of coins from Greek excavations rises from the reign of Trajan onwards to form a peak during the reigns of Septimius Severus/Caracalla. The coinage declines during the reign of Macrinus but it increases again from the reign of Elagabalus. Different peaks characterize different regions during the period of Military Anarchy. The coins from Thessally demonstrate an uneven distribution and form peaks during the reigns of Elagabalus, Severus Alexander, Maximinus (highest), Gordian III, Philip and Trebonianus Gallus. Cenchreai reaches its highest peak during the reign of Gordian III, with lower peaks during the reigns of Severus Alexander and Valerian/Gallienus. Almost the same pattern is attested in the coins from Argos, although the line declines abruptly after the reign of Gordian III. A common pattern is evident in the coinage that comes from the harbours of Corinth and Patras. The distribution of coins between the reigns of Severus Alexander and Philip is both even and quite low in comparison with other areas [chart 66].

The coins that were found while excavating the agora of Athens demonstrate an unusual pattern. The volume of coins remains low and it is distributed evenly throughout the second and third centuries AD apart for two periods: a) reigns of Trajan, Hadrian and Antoninus Pius and b) reigns of Valerian/Gallienus. The individuality of Athens could be explained if we consider the fact that the mint of Athens was active only during these two periods and that it produced a large number of bronze drachmas, hemiobols and obols [chart 67].

The coinage from the excavations at Curium, in Cyprus, presents a different pattern. The even distribution of coins during the Antonine period is disturbed during the reign of Macrinus when the volume starts rising. The number of coins remains high from the reign of Elagabalus until the reign of Trebonianus Gallus, forming very

²² Only Corinth and Cenchreai were excavated systematically.

high peaks during the reigns of Elagabalus, Gordian III and Trebonianus Gallus [chart 68].

Another indication of the volume of bronze coinage could be found in the study of the finds that end up in local museums. First of all, I used the coin finds that are now in Tokat Museum, in Turkey, probably from the area of Pontus. The even distribution of coins that is prevalent during the Antonine era becomes disturbed during the reigns of Septimius Severus/Caracalla, when the volume of coinage forms its highest peak. The number of coins remains high during the reigns of Macrinus, Elagabalus, Severus Alexander, Gordian III and Trebonianus Gallus [chart 69].

The coins from the museums of Sinop, Afyon and Fethiye, as R. Ashton and J. Casey listed them, demonstrate an even distribution of coinage throughout the Antonine era. The volume of coins from Sinop and Afyon seems to increase during the reigns of Septimius Severus/Caracalla and they reach a high peak during the reign of Macrinus. On the contrary, the volume of coins from Fethiye remains stable until the reign of Severus Alexander, when a peak is formed. The coins from Sinop and Afyon rise again during the reign of Maximinus in order to form another peak during the reign of Gordian III. After Gordian, the volume of coinage from Sinop and Afyon remains high and stable, while the volume of coins from Sinop declines [chart 70].

It is very difficult to describe the patterns of coin finds from Greek museums because they do not present important similarities. The distribution of coinage is uneven during the second and third century and the coins form different peaks throughout the Antonine and the Severan period. Most of the museums, though, demonstrate peaks of coinage during the reign of Gordian III and a subsequent decline by the reign of Trajan Decius [chart 71].

In conclusion, in almost all the cases of hoards, excavation finds and museums from Asia Minor and Syria, we see a substantial increase in the volume of coinage from the reigns of Septimius Severus/Caracalla onwards. There are, of course, regional anomalies that demonstrate high peaks of coinage during different reigns but all of them present a certain degree of increase during the Severan period and an even higher degree during the Military Anarchy period. The only exception to this rule is Greece, which indicates high output of bronze coins even during the Antonine era. Although the number of Peloponnesian mints increased abruptly during the reigns of Septimius Severus/Caracalla, there is no confirmation of a similar increase in the coins that circulated in the area. The peaks of coins from Greece for the Severan and

Military Anarchy periods remain only slightly higher than the peaks of coins as they are formed during the Antonine period. Finally, most of the areas of the eastern Roman empire indicate an irreversible decline in mint output during the reigns of Valerian/Gallienus, while only a few areas show an increase in the volume of coinage.

Our next aim is to interpret these results and to place them within the historical context of the specific areas that we examine. One of the interesting aspects of this research that needs interpretation is an increase in the production of local bronze coinage during the third century, as it is demonstrated by the above charts. This increase has taken place during different reigns in different areas, while the volume of the production of coins differed from one city to another. The excavation finds as well as coin hoards include mostly local civic coins that circulated widely in the Eastern part of the Roman empire at least until the middle of the third century. Therefore the interest of the cities in the production of small change and in their subsequent circulation should be examined in order to understand the reasons for the increased production in the Severan age.

REASONS FOR THE PRODUCTION OF COINAGE

Although the emperor did not seem directly interested in the administration of the production of local coinages²³, we cannot exclude his indirect interest, as we will see later. The most concerned parties, though, were the individuals and the cities themselves, for both political and financial reasons. A famous Hellenistic inscription from the city of Sestos, on the Hellespont, reveals the reasons that triggered the production of civic coins in antiquity. The inscription refers to a local magistrate, who happened to be also the official in charge of an issue of bronze coins. The reasons given for the minting of bronze coins are: a) that the people should be able to use coins bearing the type of their city and b) that the public treasury would profit from the minting process²⁴. It remains to see if the mentality of the people who lived

²³ See chapter 4 on authorities.

²⁴ For a standard edition of the text see OGIS, I, 339; We can find translation and comments in Austin, M. (Ed.), *The Hellenistic World from Alexander to the Roman Conquest. A Selection of Ancient Sources in Translation*, Cambridge: Cambridge University Press 1981, no. 215; For the interpretation of the inscription see Carradice, I. and M. Price, *Coinage in the Greek World*, London: Seaby 1988, 122; Martin, T.R., *Sovereignty and Coinage in Classical Greece*, Princeton: Princeton University Press 1985, pp. 238-241; Also Melville-Jones, J.R., 'Epigraphical notes on Hellenistic bronze coinage', *Numismatic Chronicle* 132 (1972), pp. 39-43, esp. p. 43; Howgego, C., 'Why did ancient states strike coins', *Numismatic Chronicle* 150 (1990), pp. 1ff, esp. p. 20 uses Sestos inscription as proof that pride

during the Hellenistic period continued to be the same during the Roman Principate. The following examples may give us an idea about the reasons for the production of civic issues in the eastern provinces of the Roman empire.

First of all, we should take into consideration that economic or financial rationality did not always characterize the actions of ancient populations; therefore we should consider the prestige of the city as so important that individuals might willingly have lost money in their pursuit of civic recognition. Numerous inscriptions preserve declarations of patriotism (*φιλοπατρία*) and magnanimity (*φιλοτιμία*) referring to a city's god, political traditions or monuments²⁵. Speeches of Dio Chrysostom expose rivalries between neighbouring cities and tend to overestimate the superiority of his own city, Prusa in Bithynia²⁶. Coins also declared the superiority and the privileges of each city or *κοινόν*. Coin legends describe cities as 'autonomous', 'free' or 'sacred'²⁷, while other legends describe them as 'first of Asia'²⁸. Cities of lesser wealth or population would also declare their importance, for example Magnesia boasted that she was the seventh city of Asia²⁹. On the other hand, there is a possibility that an element of political propaganda on behalf of the city's authorities would have existed in order to persuade rich citizens to offer their money for the funding of the production. Vanity in connection with the self-advertisement that would follow the production of civic coins were persuasive grounds and were able to initiate new issues. The prestige of the city should not be considered, though, as the main reason for the production of coinage and the coins were never purely commemorative.

Furthermore, we should not underestimate the significance of the financial profit of the city, an element that is also mentioned in the inscription from Sestos.

was a factor in a city-state's decision to create new coinage; For the latest discussion on the inscription see: Martin, T., 'Why did the Greek 'polis' originally need coins?', *Historia* 45 (1996), pp. 257-283, esp. pp. 262-264, where he emphasizes the economic importance of the production of bronze coinage for the city.

²⁵ Harl, K.W., *Civic Coins and Civic Politics in the Roman East AD 180-275*, Berkeley/Los Angeles/London: California University Press 1987, p.20.

²⁶ Dio Chrysostom, *Orat.*, 40. 16-7 and 38. 6-7 and 21-22.

²⁷ For example see Head, B.V., *Historia Nummorum: A Manual of Greek Numismatics*, 2nd edition, Oxford: Clarendon Press 1911, 1910 lxxix-lxxxiii.

²⁸ Klose, D.O.A., 'Münzprägung und städtische Identität: Smyrna in der römischen Kaiserzeit', in W. Leschhorn, A.V.B. Miron and A. Miron (eds.), *Hellas und der griechische Osten: Studien zur Geschichte und Numismatik der griechischen Welt, Festschrift für Peter Robert Franke zum 70 Geburtstag*, Saarbrücken 1996, pp. 53-63, esp. pp. 61-62. Ephesus, Smyrna and Pergamos claimed during the second century that they are the first in the league of Asia, a rank that allowed them to hold festivals in honour of the emperor.

²⁹ For references on coins and bibliography see Harl, *Civic Coins* p. 22, notes 10 and 11.

The fact that authorities of cities sometimes asked the emperor for permission in order to issue coinage³⁰, suggests that minting was not thought as a punishment but as a privilege. We cannot deny that the establishment of a new mint, the slaves who worked there and the bronze bullion would probably cost a substantial amount of money, although rich benefactors may have paid part of this expense. Bronze currency proved to be profitable for the city when it was exchanged for silver. In an inscription from Pergamos³¹ we notice that moneychangers were to sell *denarii* for 18 *asses* and buy them for 17 *asses*. Only moneychangers that were hired by the city were allowed to exact an *agio* of one *as* per *denarius*.

‘Οι οὖν τῆς ἀ[μειπτικῆς ἐργασίας μισθωταὶ πο]λ<λ>ά παρὰ τὸ δίκαιον καὶ παρὰ τὴν συναλλαγὴν [πράττειν αὐτοῖς ἐ]πέτρεπον. Παρὰ γάρ τῶν ἐργαστῶν καὶ καπήλων καὶ τῶν ὁ[ψαριοπωλῶν εἰς τὸν λεπτὸν ἐμπολᾶν εἰωθότων χαλκὸν δέκα ὀκτὼ ἀσσάρια [τὸ δη]νάρ[ιον] λαμβάνειν ὀφείλοντες καὶ τοῖς τὸ δηνάριον διαλλάσσειν βου[λ]ομένοι[ς πρό]ς [δ]έ[κα] ‘επτά διδόναι οὐκ ἤρκοῦντο τὴν τῶν ἀσσαρίων ἄμειψιν, ἀλλ[ά] κ]αὶ ἐάν δηναρίων ἀργυρῶν τις ἀγοράσῃ τὸ ὀψάριον, καθ’ ἑκάστον δηνάριον εἰσέπρασσον ἀσσάριον ἓν.³²

³⁰ See chapter 4.

³¹ Fragments and photographs by Fraenkel, M., *Alterthümer von Pergamon* VIII 2, Berlin 1895, 216 no. 279; The *editio princeps* by von Prott, H., ‘Roemischer Erlass betreffend die oeffentliche Bank von Pergamon’, *Athenische Mitteilungen* 27 (1902), pp. 78-89, no. 72; Standard edition by Dittenberger, *Orientis Graeci Inscriptiones Selectae* II, Lipsiae: S. Hirzel 1903- 1905, 484, pp. 105-112 and 552; Reproduced by Abbot, F.F. and Johnson, A.C., *Municipal Administration in the Roman Empire*, Princeton: Princeton University Press 1926, pp.401-403, no. 81; Also Broughton, T.R.S., ‘Roman Asia Minor’, T. Frank (ed.), *An Economic Survey of Ancient Rome*, IV, Baltimore: John Hopkins University Press 1938, pp. 892-895; Also Smallwood, E.M., *Documents Illustrating the Principates of Nerva, Trajan and Hadrian*, Cambridge: Cambridge University Press 1966, pp. 163-164, no. 451. Discussion: West, L.C., ‘Gold and Silver Coin Standards in the Roman Empire’, *American Numismatic Society, Numismatic Notes and Monographs* 94 (New York 1941) pp. 93-94; Magie, D., *Roman Rule in Asia Minor*, Princeton: Princeton University Press 1950, pp. 624-625 and 1486, n. 51; Bolin, S., *State and Currency in the Roman Empire to 300 AD.*, Stockholm: Almqvist and Wiksell 1958, pp. 238-243; Johnson, A.C., Coleman-Norton, P.R., Bourne, F.C., *Ancient Roman Statutes*, Texas: University of Texas Press 1961, pp. 205-206, no.246; Bogaert, R., *Banques et banquiers dans les cites grecques*, Leiden: A.W. Lijtoff 1968, pp. 231-234; Macro, A.N., ‘Imperial Provisions for Pergamum: OGIS 484’, *Greek, Roman and Byzantine Studies* 17 (1976) pp. 169-179; Oliver, J.H., *Greek Constitutions*, ed. by K. Clinton, Philadelphia: American Philosophical Society 1989, pp. 208-215, no. 84.

³² Translation according to Oliver: In fact the exchange contractors allowed themselves to make many exactions contrary to justice and their contract. For whereas they were supposed to get eighteen *asses* per *denarius* from the shopkeepers and retailers and from the salt fish dealers accustomed to do business for small bronze, and were supposed to give bronze at the rate of seventeen *asses* per *denarius* to those who wished to exchange their silver, they were not satisfied with the right of exchanging *asses*, but even if someone bought his pickled fish for silver *denarii*, they tried to exact one *as* on each *denarius*.

An inscription from Mylasa³³ confirms that the city ensured a regular income by leasing the monopoly to a single contractor. When coins were exchanged in the black market the city lost income and possibly the ability to pay its taxes. Furthermore, local authorities could profit from the distribution of coins because the denominations of local coinages were overvalued at least for the first two centuries (the intrinsic value of the coin was lower than its face value)³⁴.

Apart from the prestige and the financial reasons of individual cities, another theory has been suggested to explain the production of local mints. R. Ziegler, based on the fact that production remained intermittent throughout the first three imperial centuries, tried to locate the reasons for occasionally higher local output in the movements of the army, the visits of the emperors in the East and local festivals. In an article published in 1996³⁵ he specifically connects some of the local issues with the campaigns against the Parthians, the Marcomanni and the Jews, while finally he uses coins from Cilicia and N. Asia Minor as 'seismographs' for political tension between Rome and the Persian empire or the Danube during the Principate. His main argument is the following. Since bronze coinage was designed in such a way that it could facilitate retail transactions by the use of small change in a specific area, any sudden enlargement of the local population would create an additional demand for more small change. Movements of the army and imperial visits are the obvious causes for such sudden population changes. First of all, the soldiers that were paid in gold or silver coins needed to exchange their money with bronze coins in order to participate in the market transactions of the city. Ziegler actually believes that the authorities were aware that troop movements could cause a deficit in small change, so they took preparatory measures whenever they thought that the bronze coinage in circulation would not suffice.

The same problem appears also during imperial visits. The emperors tended to bring with them an entire 'army' of administration officers as well as real troops for their protection. The financial burden of similar trips would cost an enormous amount of money (in gold and silver) that needed to be exchanged for local bronze. The private expenses of the people who recently moved into the city, combined with the

³³ OGIS 515. See below for detailed analysis and reconstruction.

³⁴ Howgego, *Greek Imperial Countermarks*, pp. 54-50

private and the public expenses of the emperor could disturb temporarily the balance between the volumes of precious metal and base coinages. The emperor (answering to petitions) could give handouts to the inhabitants or undertake the funding of new buildings, aqueducts etc.³⁶

The above ideas seem plausible if we try to explain the direct effect of the army on the localized phenomenon of the increased production of civic coinage and the enormous time that elapses between issues of a certain city. We face, though, certain problems with this theory when we try to generalize it and when we try to explain wider phenomena such as the increased production in the beginning of the third century throughout the Roman empire. It is probably true, as Ziegler suggests, that the bulk of Roman troops that were situated mainly near the frontiers moved regularly from one fortress to the other, wherever they were needed. Movements of army regiments were attested also within the provinces of Greece or Western Asia Minor, although they were probably not of the same scale. We cannot deny the effect that the troops had in local economies and the need for more bronze coins in the local markets. We should have in mind, though, that these movements were not necessarily accompanied by a simultaneous increase in the output of bronze issues. In fact, the intermittent process of minting and the large chronological space, lasting one or more decades, between issues could suggest the exact opposite from Ziegler's theory. If the interval between issues of one mint lasted more than two or three decades, we may suspect that the soldiers that may have passed through this city did not trigger increases in the local production. Furthermore, inscriptions or other literary sources do not positively prove Ziegler's idea concerning the awareness of the authorities of the coming dearth of bronze coinage. There is an equal possibility that the deficit of bronze coins became apparent to the citizens only after the emperor or the troops left the area and the authorities realized that they should take certain measures to produce more coins. Advanced economic planning in antiquity in connection with mint production is a problem that remains unsolved.

Even if the army affected the production of civic bronze coinage in some cities, since the soldiers that traveled from one city to the other participated actively in

³⁵ Ziegler, R., 'Civic coins and imperial campaigns', in D.L. Kennedy (ed.), *The Roman Army in the East*, Journal of Roman Archaeology, Suppl. 18, Ann Arbor 1996, pp. 119-227.

³⁶ Ziegler, R., *Kaiser, Heer und städtisches Geld: Untersuchungen zur Münzprägung von Anazarbos und anderer ostkilikischer Städte*, Wien: Verlag der österreichische Akademie der Wissenschaften, Philosophische-historische Klasse, vol. 234, 1993, pp. 142-143.

retail trade using local coins, these activities do not seem to have been the decisive factor throughout the eastern Roman empire for the increase of the total volume of coins in circulation. The bulk of cities produced bronze coins for two reasons: a) the advertisement of their city and b) the profit from the minting of new issues. The patriotism of the citizens is declared often on the coins themselves, while rich magistrates do not hesitate to finance part of the production. On the other hand, the profit from the exchange of silver for local bronze coins is important revenue for the city and allows the prompt payment of taxes to the State. The eventual distribution of these coins facilitated the establishment of markets within the immediate area.

REASONS FOR CHANGES IN THE VOLUME OF PRODUCTION OF BRONZE COINS

We have already examined the reason that a city had for the production of new bronze issues. The reasons of the individual city, though, do not necessarily explain the wider phenomenon of changes in the volume of production of coinage of all the cities of the eastern provinces during the third century AD. The excavation finds, coin hoards and museum finds, as they were analysed above, show that the volume of bronze coinage in the Roman empire appeared to increase during the third century AD. Although the increase did not take place at the same time in every region, it seems that most cities eventually decided to accelerate their minting activities and raise the volume of their production. The reasons for this phenomenon should be understood and subsequently explained in accordance to the characteristics of the era.

So far, modern researchers considered military and political events as the main causes for monetary and economic changes, while the army was considered responsible for the debasement of silver coinage as well as the increase of its production. Specifically, repeated defensive wars against the barbaric tribes that invaded the empire from the North and demanded annual tribute in order to abstain from pillaging and attempts to stop the Sassanid kings who invaded the Roman empire from the East and managed to plunder part of the Eastern provinces (including Antioch) caused a certain unbalance between revenues and expenses. The imperial fiscal policy was additionally burdened because the emperors did not seem strong enough to keep their throne and thus had to face military challenges from potential usurpers. The usurpers themselves sometimes acted as if they already were emperors

and they imposed taxes on the provinces under their influence so that they could obtain the necessary funds for their military campaigns³⁷. The effect of the army in the production of silver and gold coins seems to be inevitable, since the soldiers would probably receive their *stipendium* in the form of gold or silver coins³⁸. Even certain issues were directly connected with the payment of the army³⁹.

On the other hand the role of the army in the circulation of bronze coinage is not self-evident. In the previous chapter I mentioned a few cases of soldiers getting paid in bronze coins issued by mainstream mints. We should also note the unique case of Dura Europos, where numerous coins from Peloponnesian mints were found⁴⁰. The first question that springs to mind is why they preferred coins minted in the other side of the Aegean instead of coins that were minted in the neighbouring provinces of Syria. One possible solution that has been suggested is that the troops, when they left Greece in order to fight near the frontiers, carried with them the coins that they were using within the circulation pool of the Peloponnese. The case of Dura Europos, though, does not allow us to assume that the presence of troops caused the production of civic bronze coinage from the Peloponnesian mints⁴¹.

As we have already seen, civic coinages were produced by local authorities and subsequently circulated locally. The restricted circulation of coinage has been discussed in chapter 4, where I tried to define the limits and the mechanisms used for the movements of civic issues. In a lot of cases it seems that the few civic coins found in distant parts of the empire may have been moved there through trade mechanisms and not through the movement of troops. Even if the role of the army could have been important in the movement of a small proportion of civic coins it did not seem to be as important in its production, since this kind of coinage was not used directly for the payment of the soldiers. In fact, there is no evidence to suggest that coins that were issued from eastern cities were used in order to cover directly the military needs of the state.

³⁷ These events were presented in the course of the third chapter.

³⁸ Alston, R., 'Roman military pay from Caesar to Diocletian', *Journal of Roman Studies* 84 (1994), pp.113-123.

³⁹ For legionary silver and gold coins see: Okamura, L., 'The flying columns of emperor Gallienus: "Legionary" coins and their hoards', in V.A. Maxfield and M.J. Dobson (eds.), *Roman Frontier Studies, Proceedings of the XVth International Congress of Roman Frontier Studies*, University of Kent 1989, Exeter: University of Exeter Press 1991, pp. 387-391.

⁴⁰ Seyrig, H., 'Les trouvailles de monnaies peloponnesiennes en Syria', *Syria* 34 (1957), pp. 249-259.

⁴¹ See chapter 4, for the role of Peloponnesian coins in Syria.

If these civic coins were not produced in order to be used specifically as payments for the army, we should seek the reasons for the increasing mint output elsewhere. There is no doubt that the military and political events of the third century played a significant role that should not be underestimated. In chapter 3 we already considered civil and other wars as the main causes for the high volume of silver coinage in circulation. Indirectly these wars probably affected also the circulation of bronze coinage, since the large production of silver needed an equally large production of bronze coinage.

We cannot possibly separate the importance of the army from the functions of the markets in the eastern provinces. The effect of the troops on the exchange of coins and the movement of goods within the empire should have been significant. It is almost certain that soldiers used their money in order to participate actively to commercial transactions. Merchants or others subsequently used the silver coins in order to pay for goods in the market in the same or other regions. The use of silver currency, though, was connected with the use of bronze and they both facilitated commercial activities. According to the existing Roman custom, one silver *denarius* was exchanged by the appointed banker for 16-18 bronze *asses*⁴². The banker kept one *as*, possibly a certain amount belonged to the city in the form of tax, while the rest belonged to the person interested in buying the bronze coins⁴³. When silver mint output increased, probably millions of new *denarii* were issued and were available for circulation. Also in the beginning of the third century AD the central mint of Rome reduced the issue of bronze coinage⁴⁴, probably because the authorities paid more attention to the issue of silver coins that were needed for the payments of the army. Therefore the burden for the production of bronze currency fell on the shoulders of the eastern cities, which had to produce enough bronze coins to cover the new, increased needs of the market. If any of the cities did not increase the production of their coinage, they would have faced severe problems because of the lack of bronze in the daily transactions of their citizens. Such problems will be described later when we study an inscription from Mylasa.

⁴² Other rates have also been suggested. See: Melville Jones, J.R., 'Asses and Assaria in the Early Roman Empire', Bulletin of the Institute of Classical Studies, University of London 18 (1971), pp.99-105.

⁴³ Pergamos. OGIS 484. For bibliography and commentary see above n. 28.

⁴⁴ I am indebted to Andrew Burnett for this information.

THE INSUFFICIENT VOLUME OF BRONZE COINS

As we have already seen the volume of bronze coinage increased substantially during the Severan as well as the Military Anarchy period. The question that we should try to answer is whether this increase was able to cover the current needs of the market or not. A comparison of the number of bronze and silver coin finds from this period could give us the answer if we treat them with caution. I would be disinclined to use coin evidence from hoards, first of all, because silver hoards are far more numerous than bronze ones. Secondly, it is probably methodologically incorrect to analyse different hoards that contain different denominations. Furthermore, excavations produce mainly bronze coins, therefore the number of silver finds is not adequate in most cases. The exclusion of hoards and excavation finds leaves us with the analysis of finds from local museums. In this case we find the same proportions of silver and bronze coins and thus it becomes easier to compare them. Yiannena, Corfu, Volos, Komotene and Thessalonica museums in Greece [chart 72] indicate that more bronze coins than silver circulated in Greece even during the Antonine period. The military and political changes during the third century caused only a slight increase in the volume of bronze in circulation, compared to the previous period. On the contrary, the stray finds from the museums of Afyon, Sinop and Fethiye in Turkey [chart 73] do not indicate that more bronzes were produced and subsequently circulated in the area than silver coins.

Instead we notice slight increases in bronze mint output during the Severan period in Greece and slightly higher increases during the Military Anarchy period, while the volume of the production in Asia Minor remained almost the same. Therefore, we can see that the balance between the number of silver and the number of bronze coins in circulation probably changed during the third century. As we have already seen, the exchange rate between silver: bronze was 1: 16/18. In this case, we should have expected a substantial rise in the volume of bronze that would cover if not all at least part of the exchange. Even if we do not calculate the rise to be of 16-18 bronze coins for every *denarius* (after all, a number of silver coins probably went out of circulation and into hoards), we should still anticipate a substantial increase. Such an increase in the production of bronze coinage throughout the empire could take place either if more cities decided to establish new mints in order to aid bronze production or if the existing mints managed to produce more bronze coins. If this

increase actually occurred, it would have been enormous, it would have had affected the circulation of coinage, and it would have been quite apparent in our charts.

Furthermore, the increases do not coincide in every region with the reigns of Septimius Severus and Caracalla, when major changes in the silver standard took place and when the *stipendium* was more than doubled. Since the soldiers received more silver coins during the early Severan period, the bronze coins in circulation should have been enough to cover the exchange of silver for bronze. Instead, in some areas mint output starts rising from the reign of Macrinus or Elagabalus or later⁴⁵. This phenomenon allows us to suggest that the effect varied from one region to the other. It seems that not all of the cities recognised the lack of coinage at the same time and even less decided to take early measures. It is also probable that every city faced different problems and used different methods to remedy the situation. The central authorities in Rome did not seem to interfere directly and the local authorities undertook the task of solving the problems of each region separately. The following case study of Mylasa could give us an idea of the individual circumstances occurring in the city.

AN INSCRIPTION FROM MYLASA

The problems caused by the inadequate increase of bronze coinage in the East and the solutions that were followed by Mylasa could be traced when we study an inscription from this city. The inscription was found in the city of Mylasa in Asia Minor and was partially restored and published for the first time in *Bulletin de Correspondance Hellénique* (1894) by T. Homolle⁴⁶. Other publications followed in order to complete the restitution of the fragmentary inscription and to interpret the text⁴⁷. So far, the most widely accepted version is the one published by Dittenberger in 1905 in *Orientis Graeci Inscriptiones Selectae*⁴⁸, as reproduced below.

⁴⁵ See charts A-W.

⁴⁶ Homolle, T., 'Une crise monétaire: Au III^e siècle de l'ère chrétienne (Inscription de Mylasa)', *Bulletin de Correspondance Hellénique* 17 (1896), pp. 523-548.

⁴⁷ The text and interpretation in Abbott and Johnson, *Municipal Administration in the Roman Empire*, Nr. 133, pp. 461-463; Broughton, *Roman Asia Minor*, pp. 894-897; Blümel, W., *Inschriften griechischer Städte am Kleinasien: Die Inschriften von Mylasa*, I, vol. 34, Bonn: R. Habelt 1987, pp. 220-223, Nr. 605.

Discussion of the inscription Magie, *Roman Rule in Asia Minor*, pp. 682; Pekáry, T., 'Studien zur römischen Währungs- und Finanzgeschichte von 161 bis 235 n. Chr.', *Historia* 8 (1959), pp. 443-489, esp. pp. 464-466; Bogaert, *Banques et banquiers dans les cites grecques*, pp. 265 ff.

⁴⁸ Dittenberger, *Orientis Graeci Inscriptiones Selectae*, 1905, Nr. 515, pp. 160-165.

-----ην-- φ--- Ι
 ----- γα----- Ι
 -----εσειν-----δ.ονετ----- Ι
 τήν βουλή[ν κ]α[ί τόν δῆμον-----ΙΙ
 ----- κο]ινήν ‘ομόφρονα γνώ[μην -----Ι
 -----] ἐν ταῖς νομίμοις ‘η[μέραις ----- Ι
 -----]ων ἐπανορθῶ[σαι ----- Ι
 -----]’αφορήτου παῖσιν’όντος τ[οῦ ----- Ι
 --, οὐ φαίν]ηται δέ δύνασθαι ἰαθῆναι ΙΙ
 πλ]ή[ν] διά [τήν τ]ῶν μεγίστων [καί θειοτάτων κυρι
 ι]ων ‘ημῶν Αὐτοκρατόρων Λο[υκίου Σεπτιμίου Σεου[ή]ρου
 Εὐσεβοῦς Περτίνακος κ[αί Μάρκου Αὐρηλίου Ἀνι
 τω]-νίνου [Εὐσεβοῦς καί Ποπλίου Σεπτιμίου Γέτα Σεβαί
 ς]τῶν τύχην, ψηφίσματι τῆς β[ουλῆς καί τοῦ δήμου ἐπι
 α]νορθωθέντα· δεδόχθαι τ.ῆ [βουλ.ῆ καί τ.ῶ δήμ.ω· εἰ
 ά]ν τις ο’ι.ωδητινιοῦν τρόπ.ω, [εἴτε ἐλεύθερος εἴτε Ι
 δ]οῦλος, ἐξωθεν τοῦ μεμισθωμ[ένου καί ἐργαι
 ζο]μένου τήν τράπεζαν, ἀμειβόμεν[ος ‘αλῶι νόμισμα ἥ Ι
 πρι]άμενος, πρὸς τόν τραπεζεῖτην [τοῦτον ἄγεσθαι ΙΙ
 γεν]ομένης προσανγγελίας τ.ῆ βουλῇ [‘υπό τοῦ βουλομέ
 νου τ]ῶν πολειτῶν, καί ἐλεγχθέντα ἐπ[ί τ]ῶν ἀρχόντων καί Ι
 τῆς βουλῆς, εἰ μὲν ἄνευ κολλύβου τοῦτ[ο ἐποίησε, τοῦ ἀργυρίου Ι
 πρᾶξ]ιν εἶναι τ.ῶ τραπεζεῖτ.η καί τ.ῶ μηνύς[αντι καί ‘ελόνι
 τι, ἐ]χοντος τοῦ τραπεζεῖτου καί κατ’ αὐτόν ἐξο[υσίαν πράττει
 σθαι κα]θὰ ἡσφάλισται, εἰ δέ ἐπὶ κολλύβ.ω τόν [μὲν ἐλεύθερον
 ἀποι
 τίνει]ν (ε)ἰς τό ‘ιερώτατον ταμεῖον τῶν κυρίω[ν ‘ημῶν θειοτά
 των] αὐτοκρατόρων * φ’, τ.ῶ δέ δήμ.ω * σν’, κ[αί τ.ῶ μηνύ
 σαντ]ι καί ‘ελόντι * ρ’, καί το φωραθέν ἀργυροῦ[ν νόμισι
 μα πρ]ασσομενον εἶναι στερέσιμον τ.ῶ τραπεζε[ίτ.η· τόν δέ δοῦλι
 ον ἐλ]ενχθέντα ‘ως προγέγραπται, παραδοθέν[τα δέ ‘υπό τοῦ δεσι
 πότου] τοῖς ἀρυσι ἐπὶ [τῆς βουλῆς, μαστειγοῦσθαι ν’ πληγὰς Ι
 καί] ἐμβάλλεσθαι (ε)ἰς τό πρακτόρειον καί εἶναι [αὐτόν Ι

ἐπὶ τῆς (ε)ῖρκτῆς τασσόμενον μῆνας ἑξῆς· ἐάν δέ [᾽ο δεσπότης μή ἰ
 πο]ῆς[ε]ῖε ταῦτα τὸν δοῦλον, ὀφείλειν αὐτόν τά [γεγραμμένα ἢ
 ἐπὶ]τειμα τῷ ἱερωτάτῳ ταμείῳ καὶ τῷ δήμῳ [καὶ τῷ
 μηνύσαντι καὶ ἰ ἑλόντι. Τὰς δέ τοιαύτας προσανγγελίας
 εἰσδέ[χεσθαι τὸν γραμματέα ἰ τῶν ἀρχόντων, γενομένης μετὰ τὸ
 ἐπιδ[οθῆναι τὴν προσι
 ανγε]λίαν προγραφῆς ἐφεξῆς ἐπὶ τρεῖς ἡμέ[ρας ἐν ἱεροῖς ἰ
 καὶ δη]μοσίοις τόποις, ῥητῶς τῆς προγραφῆς [λεγούσης ᾽ότι ἢ
 συνάγ]εται ἡ βουλή διὰ τοῦτο. Εἰάν δέ οἱ ἄρχοντες ἢ ᾽ο
 γραμματεὺς ἰ τῶν ἐψη]φισμένων τι παραλίπωσιν ἢ οἱ βουλευταὶ
 [μή συνἰ
 ἐλθω]σιν δυνατοὶ ὄντες καὶ ἐπίδημοι, τοὺς μὲν [ἄρχοντας καὶ ἰ
 τὸν γραμ]ματέα ἀποτεῖσαι ἑκάστον αὐτῶν (ε)ἰς τὸ [ἱερώτατον
 ταμείον τῶν Σεβα]στῶν ἀνά * τ', τοὺς δέ βουλευτάς [ἀνά *..
 ἀναγράῃ
 ψαι δέ τὸ]δε τὸ ψήφισμα ἐν στήλῃ, ἥν καὶ ἀνα[σταθῆναι ἰ
 δεῖσει ἐν τῇ] ἀγορᾷ ἐν τῷ ἐπισημοτάτῳ τόπῳ ᾽ὡς[περ νόμον
 εἰς τὸν πάνι
 τα χρόνο]ν καταστήσον· σαλεύει γάρ ᾽ως ἀλη[θῶς ἡ σωτηρία ἰ
 τῆς πόλε]ως ἐκ κακουργίας καὶ πανουργίας ὀλίγων τινῶν ἰ
 αὐτῇ ἐπεμβα]ινόντων καὶ ἀπονοσφίζομένων τ[ὰ κοινά, ᾽ὼν ᾽υπό ἢ
 τῆς δυνάμ]εως κόλλυβός τις ἐνπεφοίτηκεν εἰς [τὴν ἀγοράν, ἰ
 κωλύων τὴν πό]λιν τά ἐπιτήδ(ε)ια ἔχειν, ἀπορούντων [τῶν πολλῶν
 ἰ
 καὶ τοῦ κοινοῦ σ]πανίζοντος. καὶ διὰ τοῦτο καὶ ἡ εὐ[πορία ἡ ἰ
 πρὸς τοὺς κυρίους αὐ]τοκράτορας τῶν φόρων βραδύνει ----- ἰ
 ----- μεγάλης ἡγεμονίας τοῦτο πᾶσα ἡ ----- ἰ
 ----- ἐπανορθῶσαι. Succlam(atum) est: (ε)ἰς αἰῶ[να ---
 -----]ων ἀνεικῆτοις τοῖς κυρίοις, ναοῖς [----- ἰ
 ----- κόλλ]υβον. τὸ ζῆν οὐκ ἔχομεν, ἀλλ' ἡ πό[λις ----- ἰ
 ----- πονη]ρευόμενοί τινες ἐνπορείας ταρ[άσσουσιν καὶ ἰ
 τὸ νόμισμα ----]ουσιν τὸ ἀργυροῦν, καὶ τοῦτο [----- ἢ
 ----- τ]οὺς νόμους πολλάκις ἡ βο[υλή ----- ἰ
 -----] π πολειτ-----

The inscription is in fact a decree issued by the council and the assembly of the city. It declares that «if anyone in any way, either free or slave, apart from the one who has leased and runs the bank, (is caught) exchanging or purchasing currency, he shall be brought before the banker, upon information laid before the council by any of the citizens who wants (to bring him)». If the person made no profit from the transaction he should forfeit to the bank the amount of the transaction. If he did make a profit, in addition to the forfeiture, he should pay the amount of 850 *denarii*, to be divided among the imperial treasury, the city-council and the accuser. If he was a slave, the penalty was a beating and six months in prison. The chief magistrates responsible for these cases would also be punished if they did not act immediately. The decree finishes with an account of the problems that tormented the city and their consequences. According to the existing restorations and subsequent translations of the last part of the inscription: “...for the safety of the city is endangered through the evil doing and wickedness of a certain few, who trample upon and rob the public interest, through whose power a kind of exchange has established itself in our market, which keeps the city from possessing the necessities of life, while many are in need and the state is in want. For this reason funds for the tributes to our lords the emperors come slowly...”⁴⁹.

a) The Black Market

The inscription describes the illegal exchange of currency (black market) that forced the city to vote for an edict. It seems that the authorities leased the right of exchange of coinage to certain bankers that alone were responsible for its regulation. It is obvious that from the beginning of the third century (the inscription is dated to AD 212) the involvement of other persons in such actions had become widespread and created problems not only for the bankers who lost their profits but also to the city itself. One of the questions that should be answered is why was the edict voted during the third century? Even if it was the repetition of an older edict we should also ask ourselves why the authorities of the city considered it imperative to renew the law and publicise it during the early Severan period?

⁴⁹ The translation of this passage can be found in Broughton, *Roman Asia Minor*, p. 897.

According to a widely held theory, the main reason for the illegal exchange of silver for bronze coins was the debasement of the imperial silver coinage. The Mylasa inscription may suggest that, due to the debasement, the commercial ratio between silver and bronze changed, although the legal ratio remained the same; for internal and foreign trade the legal value of the *as*, which was fixed at 1/16th to 1/18th of the *denarius*⁵⁰, could not be imposed any more. The population panicked, so gold and silver went into hiding or were used for payments outside the empire, whilst bronze, which was used as token or credit currency, began to be in demand as something of real value. At the same time, silver disappeared from the market and its dearth triggered the illegal exchange of coins. The *boule* of Mylasa, disdaining or ignoring economic laws, believed that they could find a remedy to this intolerable situation by reinforcing the monopoly of the official moneychangers and by redoubling the penalties⁵¹.

Although these views sound feasible I intend to show that the black market could have been triggered only indirectly by the debasement of silver coinage. First of all, there is no proof of extensive hoarding of high quality silver or gold coins during the Severan period that would suggest panic caused by the debasement, as previous researchers supposed. In Asia Minor, silver hoards contain a relatively low number of coins belonging to the Antonine period that are characterised by higher silver fineness, while the bulk of the coins belong to the reign of Caracalla and are of lower intrinsic value. Therefore we could assume that the inhabitants did not prefer the older coins of the higher fineness that were produced during the Antonine era. This evidence could suggest that local populations were not seriously affected, at least during the Severan period, by the debasement, and panic never seemed to trigger extensive hoarding.

Modern historians who have studied the inscription from Mylasa have come to the conclusion that silver coins were withdrawn from the market when their owners decided to bury them, thus creating an artificial dearth of silver coinage. On the contrary, the military and other needs of the state during the third century allow us to expect an abrupt increase in the circulation of silver coins in the market. The

⁵⁰ Gara, A., *Prosdigraphomena e circolazione monetaria*, Milan: Cisalpino-Goliardica 1976, pp.122-131. Although the official ratio of the exchange of the denarius was 1:16, in Asia Minor another ratio 1:18 has been established. The difference in value was probably paid as profit to the treasury of the city or the imperial *fiscus* or even the banker. See also above inscription from Pergamos.

⁵¹ Homolle, 'Une crise monétaire', pp.545 ff..

statistical analysis of silver hoards and coins in museums showed a substantial increase in the volume of silver coins circulating in Greece, Asia Minor and Syria after the reign of Septimius Severus⁵². It is possible that such an increase affected the balance in the volume of bronze and silver coins. We could suggest that the bronze coins in circulation were not sufficient any more for the exchange with silver coins and subsequently the needs of retail transactions⁵³.

During the third century certain unexpected events could have driven the city authorities to despair, if there was a lack of bronze coinage. For example, during a festival or sudden movement of the army they would need more bronze as soon as possible. If the city could not provide more bronze coins for the market then people would have been forced to address smaller traders dealing mostly in bronze. The inscription from Pergamos that we have already discussed refers to three different classes of citizens that were involved in retail transactions acquiring bronze coins in order to use them for the conduct of their trade: shopkeepers (ἐργαστοί), retailers (κάπηλοι) and salt fish traders (ὀψαριοπῶλαι). According to the Hadrianic decree, retail transactions had to be executed in local bronze so that the bankers could extract their payment from the exchange of coins and the city would receive the *agio* of one *as per denarius*⁵⁴. Although it has been suggested that fish traders and other such merchants were not obliged by the force of law to receive only bronze coins during their transactions⁵⁵, I think that according to our inscription we should assume that use of silver coins in retail trade was discouraged⁵⁶. During the third century, if there was a lack of bronze coinage in the official treasury of the city, traders who gathered vast numbers of bronze coins every day would gladly exchange the money with a small profit for them, while the bronze coins in question could have been either newly minted, or older coins from the same city or coins minted in neighbouring cities.

⁵² See chapter 3, for increased circulation of silver coins during the third century.

⁵³ See above for inadequate increase of bronze coins.

⁵⁴ Pergamos. OGIS 484.

⁵⁵ Buttrey, T.V., 'The President's address: Exchange and circulation at Pergamum in the second century AD', *Numismatic Chronicle* 151 (1991), pp. iii-vi.

⁵⁶ 'Ὅσα μέντοι τῶν λεπτῶν ὀψαρίων σταθμῶι πιπρασκόμενα τιμᾶται 'υπό τῶν ἀγορανόμων, τούτων, κἂν πλείονας μνᾶς ὠνήσονται τινες, ἥρρεσεν 'ημεῖν τήν τιμήν αὐτούς διδόναι πρὸς κέρμα, 'ώστε ἀπ' αὐτῶν σώσζεσθαι τῇ πόλει τήν ἐκ τοῦ κολλύβου πρόσδοτον. 'ομοίως καί ἐάν πλείονες συνθέμενοι ἀργυρῶν δηναρίων δόξωσιν ἡγορακέναι εἴτα διαιρῶνται, καί τούτους λεπτὸν διδόναι χαλκόν τῶι ψαριοπώλῃ, 'ἵνα ἀναφέρηται ἐπὶ τήν τράπεζαν'

Translation according to Oliver, *Greek Constitutions*: It met with our approval that on these sales (the purchasers), even if some buy amounts weighing several minas, pay the price in bronze, so that the revenue from the exchange be preserved for the city; likewise, even if several who had banded together

Keeping these considerations in mind we can go back and try to restore the inscription. In line 53 instead of ‘τοῦ κοινοῦ’ we can use the word ‘τοῦ χαλκοῦ’⁵⁷. Consequently our translation would be: «...the safety of the city is endangered through the evil doing and wickedness of a certain few, who trample upon and rob the public interest, through whose power small change flooded the market, which keeps the city from possessing the necessities of life, while many are in need and the bronze coins are rare...».

This interpretation forces us to take into account another problem that supposedly comes in contradiction with my theory. If there was a lack of bronze coins, so what kinds of small change were abundant in the market (line 51)? I would like to suggest with every possible caution that coins from neighbouring cities are mentioned. It is not unusual to find coins from one city or province circulating in another city or province in great numbers, and, probably, during the third century, some of the cities managed to produce higher volumes of bronze coinage than others, thus creating a surplus in their area. Local or international traders could have been responsible for the movement of coins from the city where they were abundant into another where there was dearth. It is also possible that local traders would travel to neighbouring cities in order to acquire the available bronze coins from the local authorities. If this is the case we could also change lines 50-51. Instead of ‘ὑπό τῆς δυνάμεως’ we could suggest ‘ἐτέρας πόλεως’ or something similar.

The possibility of other cities supplying with coins Mylasa, where the citizens faced a shortage of bronze coinage, remains consistent with the idea that every region took different measures and increased the volume of its coinage during different reigns. If the banks of Mylasa by 212 AD did not have the ability to distribute the necessary number of bronze coins in the market, this does not necessarily mean that other neighbouring cities were in the same position. There is always a possibility that other mints raised the volume of their production before 212 AD in order to cover their own needs. The vacuum that was created in the area around Mylasa and the city itself eventually had to be filled by the ‘invasion’ of the surplus of civic coins from other areas.

are seen to have bought for silver *denarii* and then divide it up among themselves, they too pay in small bronze to the salt fish dealer in order that (the bronze) be taken to the bank.

⁵⁷ For the meaning of κόλλυβος in antiquity see: Gara, *Prosdiagraphomena*, Appendix III, pp. 173-183

The overall low production of bronze coins that characterised the beginning of the Severan period in the eastern provinces of the Roman empire should not have affected the markets for long. Eventually, the situation was probably remedied long before the middle of the third century by the combined efforts of civic mints to increase their own coinages. It seems, though, that by the beginning of the reign of Caracalla the outcome was still ambivalent in some of the regions and that additional measures were required in order to suppress illegal profits through the black market from the exchange of coins.

b) Profitability

The situation had further implications for the prosperity of the city of Mylasa. The inscription specifically mentions that the security (σωτηρία) or 'εὐημερία' was threatened by the actions of the few who exchanged the coins (line 48). The language of the text at this point becomes quite elaborate in order to paint with dark colours the situation in the market and its effect on the lives of the citizens. Specifically, it is mentioned more than once that the city as well as the citizens did not have what was necessary for their survival and the payment of taxes to Rome had to be delayed.

Until the beginning of the third century there is evidence for the profitability of civic coinage. This situation possibly changed the moment that Septimius Severus decided to debase the *denarius*. The real value of bronze coins in comparison to the real value of silver coins probably increased. The same happened probably to the price of bronze bullion. The city, which used to buy bronze bullion for a lower price and then sell it in the form of coins with a substantial profit, possibly lost this revenue, since the legal value of bronze *asses* was now closer to their intrinsic value. In some instances we could support the theory that cities lost money when they decided to issue coinage. Especially small communities, such as Mylasa, might not have been able to cover mint expenses. Maybe this is the reason why Mylasa decreased the number of issues after the death of Caracalla, although she probably still had permission to produce her own coins [chart 55].

On the other hand, we should assess the alleged inability of the city to pay its own taxes because of the acceleration of the black market. It is difficult to explain the desperate tone of the citizens when they describe the bad luck that has befallen and their inability to pay the taxes to the Roman treasury. Specifically, the debasement of

coinage and the lack of bronze coins in the market could not affect directly the property of the landowners in the Roman provinces that were the most important taxpayers. At the same time the ancient sources mention neither radical changes in the tax system nor enormous tax increases that would explain the extreme anxiety of the citizens. In addition, the income of the city was not entirely based on the profit that came from the production or exchange of coins. Other resources, such as *portoria*, loans and rents remained unaffected.

Besides, it seems that only a small percentage of the taxes was paid in goods while some were paid in money to the central government. According to Stephen Mitchell, money taxation may not have exceeded 20 per cent in much of Anatolia, since money-based taxes could have been only the tax on the inheritances of Roman citizens (*vicesima hereditatum*), the manumission of slaves, the customs dues (*portoria*). The poll tax (*tributum capitis*) and the taxation on property (*tributum soli*) need not have been paid in money, since the peasants had little or no cash reserves anyway. The community that was responsible for the collection and payment of taxes to the Roman officials probably accepted goods from the citizens and subsequently transformed most of them into silver or gold coins⁵⁸. Since the absence of gold coins from circulation during the third century, analysed in the third chapter, is evident, we should suppose that the authorities paid their taxes in silver coins that were minted in abundance throughout the Severan and Military Anarchy period. If silver coins were numerous, it is difficult to believe that the city did not have the ability to face its financial obligations.

Under no circumstances can we justify the allegations of the authorities, unless they decided to exaggerate in order to attract the interest of the emperor. For this purpose the tone of the inscription became exceedingly rhetorical especially at the end. There is a possibility that the city delayed the payment of taxes for other reasons. In order to gain time to gather the taxes, the authorities probably tried to blame the illegal exchange of coins for the loss of the revenue.

⁵⁸ Mitchell, S., *Anatolia: Land, Men and Gods in Asia Minor*, Oxford: Clarendon Press 1993, p. 256; For general information on the types of taxes see Neesen, L., *Untersuchungen zu den direkten Staatsabgaben der römischen Kaiserzeit*, Bonn: Habelt 1980; Review on Neesen's work by Brunt, P.A., 'The revenues of Rome', *Journal of Roman Studies* 71 (1981), pp. 161-172; For the payment of taxes in gold (Egypt) or silver (Palmyra) see: Gara, *Prosdiagraphomena*, pp. 14, 64 and 105.

Imperial interference

The next obvious question that we should ask ourselves is how did the authorities of small cities cope with the problem of the dearth of bronze coinage and what was the reaction of the central government?

First of all, cities were forced to issue more bronzes not only by the circumstances but also probably by the emperor, who was not deaf to the complaints of the provinces. Actually, there is an organisational development of mints at the end of the second century that could suggest the interference of a higher authority. In the period from about 192 to 212 AD, the patterns of supply of dies in the western coastal region of Asia Minor were relatively complex, but after about 212 the workshops were organised on a strictly regional basis⁵⁹. The whole coinage was produced by engravers who engraved the same dies for more than one city. It has been suggested that a certain stability and organisational competence was required for the operation of these mints, which could have been achieved across Asia Minor in the context of state activities. The provision of civic bronze coinage during the third century was probably regulated by a central authority, possibly the procurator⁶⁰ acting for the emperor. Since the cities could not make an adequate voluntary provision of coins any more, the central government had to interfere.

The emperor is the obvious authority that would organise such a production and the only person who could force cities to undertake minting activities even if the production of civic coinage was not profitable any more. On the other hand, the mint of Rome seems to have decreased the production of 'official' bronzes during the reign of Septimius Severus. The number of bronzes issued during the third century in Rome probably facilitated the immediate needs of the imperial court for everyday transactions and not for the payment of the army or other major expenses. It is possible that the emperor did not want to lose money since the minting of bronze coinage was not profitable any more. The problem of the dearth of bronze coinage

⁵⁹ Kraft, K., Das System der kaiserzeitlichen Münzprägung in Kleinasien, Berlin 1972; Review of Kraft's work by Johnston, A., 'New problems for old: Konrad Kraft on die-sharing in Asia Minor', Numismatic Chronicle 7th ser., vol. 14 (1974), pp. 203-207. Details on dies from Sardis in Johnston, A., 'Die sharing in Asia Minor: The view from Sardis', Israel Numismatic Journal 6-7 (1982-1983), pp. 59-78.

⁶⁰ Johnston, 'Die sharing in Asia Minor', p. 70.

that local markets faced in the provinces of Asia Minor or elsewhere was supposed to burden only the cities or the local authorities.

It seems that private transactions in bronze would have been disturbed throughout the empire if the circulation of bronze coinage in the market did not suffice. The inhabitants of the eastern provinces would have had to find additional ways to solve the problem if the authorities were not able to do it. In fact, one would expect them to revert to a more primitive economy, involving the exchange of goods instead of the exchange of coins. As far as monetization is concerned we have to admit that there is no evidence to indicate an undermonetized economy, although there is a possibility that there were such tendencies. The excavations continue to reveal a great number of coins of small denominations that were obviously used for minor transactions. There are, though, changes in the monetary system that took place probably because the citizens did not trust the currency any more. Such reforms finally led to the transformation of the whole system by the middle of the third century, as we will see next. The civic coinages disappeared and gave their place to central mints that provided bronze coins for western and eastern provinces alike.

THE END OF CIVIC COINAGES

When we analysed the bronze numismatic evidence we realised that according to regional differences the volume of bronze coinage either increased or decreased radically by the middle of the third century. Therefore we cannot use it as an indication that would demonstrate the rhythms of the production of civic coinage and its end throughout the empire during the reign of Gallienus. The study of the end of the eastern coinages should be based on the dates when most of the mints were closed. In the course of the third chapter we noticed the decentralisation of silver coinage by the 250s. The reign of Gallienus, specifically, becomes a landmark for the movement of official coinage from the mint of Rome to eastern mints, such as Antioch, or western mints, such as Siscia, Milan etc. A chart that was produced by W. Leschhorn⁶¹, showing the end of individual mints in Asia Minor, could indicate the same phenomenon. It seems that the majority of local mints stopped producing civic coinage by the end of the reign of Gallienus, while only a few of them continued until

⁶¹ Leschhorn, 'Le monnayage imperial', p. 261.

the reign of Tacitus. Bronze coins that were minted during previous periods continued circulating for years after the mid-third century along with newly minted bronze coins from mainstream mints and *antoniniani*.

In order to understand the reasons that caused the downfall of the monetary system that relied on city mints we should, first of all, define the way it functioned during the third century. So far, we know that the cities of Asia Minor issued bronze coinage, which was based on either Roman or Greek weight standards. The weight standards employed cannot always be accurately identified in most instances; even denominations can rarely be distinguished except in those cases in which the coins bear marks of value. The general impression that used to be given by Greek Provincial coins is that they flourished in a state of metrological diversity⁶². There are, though, generalised patterns that can be applied to different regions, concerning the various denominations. So far, during the JulioClaudian period, 3 groups are identified: A) Coins of approximately 19-20mm/5-7g and its half located in Greece and in the province of Asia. B) In Bithynia the metrology of coinage is modified from Roman denominations (minor cases also exist in Greece, Asia, Lycia and Syria). C) In Syria, where the coins of the region are all bronze, they are quite thick, with a slightly oval shape to the flans. The principal denomination was made at about 25mm/15g, although it is more difficult to generalise about the smaller denominations. D) The cities situated in Eastern Cilicia or Cilicia Pedias also produced a distinctive coinage. The coins tended to have a very wide diameter and they were very thin while the most frequent denominations were made at a standard of 24mm/11g or 28mm/15g, 20mm/7g, 17mm/4g⁶³. The same phenomenon is attested also later, when any given standard may have been in use in more than one city. A number of cities on the western coast of the Euxine employed a common standard, as did Heracleia and Tium on the southern coast. Such 'monetary leagues' had systems which differed from one another, both in the weights adopted for an *assarion* and in the rates at which those standards declined⁶⁴. There have been attempts to analyze the denominations also in mainland Greece, where similarities were found between the coinages of different Peloponnesian cities. In fact it has been suggested that two different bronze systems were in use in the Peloponnesos for their coins without

⁶² Jones, 'A numismatic riddle', p.309.

⁶³ Burnett et al., *Roman Provincial Coinage* I, p.36.

⁶⁴ Howgego, *Greek Imperial Countermarks*, p. 60.

imperial portrait after the introduction of the *denarius*. For example, some cities like Sparta and Roman colonies employed the Roman *assarion* and its divisions and multiples, while the rest of the cities continued to use their currency of *hemiobols* and its divisions at least during the early Antonine period⁶⁵.

I would be inclined to accept that the metrological differences had only a superficial effect and they did not influence everyday transactions, since the coins did not bear any value marks that would distinguish them. The citizens were obviously capable of recognising the value of an individual coin even if it came from a distant city and they did not hesitate to use it in their local markets. The excavations and coin hoards depict a colourful circulation of coinage that was minted all over the Mediterranean and subsequently circulated within one or two or more provinces⁶⁶.

This situation continued until the middle of the third century AD when we notice a new phenomenon: various cities started to countermark their coinage, which was already in circulation, with Greek letters, used as numbers. These numbers probably represented the current value of the individual coin. The use of value countermarks seems to have been most widespread in western Asia Minor and Bithynia, while they are exceptional in northern and southern Asia Minor. The evidence from the countermarks or value marks that are dated to the middle of the third century suggests that there is no need to suspect any visible change in values before the late 250s. Aside from a few exceptions (there are instances of countermarked values even before 200 AD), there was apparently no widespread change in values until ca. 255 AD. After the system began to collapse, if values are not indicated there is no way of knowing whether the face values were raised and by how much. This is presumably why the practice of countermarking became widespread in the 250s when the monetary system was completely transformed. Until then the system of denominations was reasonably stable, and values could have been recognised fairly easily.

Regional differences as well as similarities in countermarking have been noticed by Dr. Howgego. The decline in weight standards in Lakedaïmon and Argos began under Commodus, continued after 253 and accelerated after 260. The Koinon of Thessaly faced a decline between 235-260 AD. In western Euxine, the standards of

⁶⁵ Kroll, J.H., 'Hemiobols to assaria: the bronze coinage of Roman Aigion', *Numismatic Chronicle* 156 (1996), pp. 49-78, esp. p. 54.

⁶⁶ See chapter 4.

Tomis declined between Marcus Aurelius and Commodus, while most cities showed consistency between the reigns of Commodus to Philip. In Sarmatia, Tyra kept the same standards from Commodus until Severus Alexander while Olbia weight standards declined in the 170s. The weight standards in Bosphorus showed a decline from Claudius to Nero, further reductions 161-186 AD, halving of the value 196-210 AD and accelerated decline after 239 AD. In southern Euxine, weight standards declined under Gordian and Gallienus. Smyrna demonstrates a gradual decline in weight standards from the Severan period until after 260 AD. Finally the weight standards of Pamphylia declined from the reign of Valerian⁶⁷.

If there was a 'hidden revaluation' between 200 and 255, the new values in the 250s surely should have been higher than those that we observe. Also, there would have been no particular reason to label the denominations after the latest revaluation if the previous changes were carried out successfully without being marked. Furthermore, such revaluations would have been hard to implement in practice, given the fact that the local bronzes circulated relatively freely outside their place of issue. Merchants or soldiers could have faced difficulties in recognising the various denominations, if they belonged to continually changing weight systems, let alone if they imposed their own commercial value on the coins without taking into consideration the legal value. Denomination marks became absolutely necessary in order to avoid misunderstandings or even deliberate fraud⁶⁸.

It is widely accepted that the bronze: silver ratio changed de facto in the course of economic transactions during an uncertain time after the increase of bronze in silver coins in the early Severan period. The official change of ratio in the beginning of the third century, though, seems to be erroneous and there is no solid evidence to support it. On the contrary, the evidence from the countermarking that took place in the mid-third century suggests that the change of ratio took place later. If we accept that value marks are a sign for the alteration of exchange rates and the transformation of a well-established monetary system, we could come to the conclusion that the ratio between silver and bronze and subsequently their exchange rate remained unaltered for years after the debasement of silver coinage. Until the

⁶⁷ Howgego, *Greek Imperial Countermarks*, pp. 62ff.

⁶⁸ Johnston, A., 'Greek Imperial Denominations in the Province of Asia', in J. Nolle, B. Overbeck and P. Weiss (eds.), *Nomismata 1: Internationales Kolloquium zur kaiserzeitlichen Münzprägung Kleinasien*, 27.-30 April 1994 in der Staatlichen Münzsammlung München, Milan: Ennerre 1997, pp. 205-219, esp. pp. 205-206.

widespread countermarking of provincial coinage took place, there was no apparent reason for the inhabitants of Asia Minor not to trust the established values and the existing denominations⁶⁹.

After the mid-third century the gap in the intrinsic value between bronze and silver coins became negligible because of the repeated debasements. The citizens probably noticed by then that the value of their bronze coins, in some cases, could have been higher than the value of their silver coins. A preference for bronze coinage over silver probably led to the reform of exchange rates⁷⁰. The countermarks that were applied in the middle of the third century (long after the Severan debasement) were supposed to increase the external value of the bronze coins so that it would match the debasements of the *antoniniani*. The problem is that during the reign of Gallienus the *antoninianus* consisted of ca. 2,5% silver while the rest was bronze⁷¹. If the authorities decided to revalue their coins according to their intrinsic value, then bronzes would have been as precious as silver coins. Since the cities could not profit from the production of bronzes any more, they stopped minting, and the task of distributing bronze coinage in the Roman empire was undertaken by the emperor and the central mints. Although mainstream coinage travels far, we cannot expect the even circulation of 'official' bronzes in all provinces, since bronze coinage tends to move in short distances if the central authorities do not interfere⁷².

Actually, there was no immediate need for the production of bronze coinage since *antoniniani* that lost their fineness could replace bronze coins in smaller transactions. If we accept that the monetization of the economy should be estimated according to the extent of the use of small denominations in everyday transactions and not according to the use of gold and silver coins in substantial transactions that take place rarely, we will have to accept that there is no evidence to indicate that everyday transactions were conducted in goods. Even if the number of civic issue in circulation

⁶⁹ For changes in the bronze currency system in the Eastern Roman empire during the third century AD see also: Klose, D.O.A., 'As und Assarion: Zu den Nominalsystemen der lokalen Bronzemünzen im Osten des römischen Reiches', *Jahrbuch für Numismatik und Geldgeschichte* 36 (1986), pp. 101-105

⁷⁰ The reasons for the end of civic coinages are also unfolded in an article by Salamon, M., 'Causes of disappearance of city-mints in Asia Minor in the second half of the 3rd century AD', *Wiadomości Numizmatyczne*, 14 (1970), pp. 146-162, where he claims that not only bronze coinage would cause financial losses to the local cities but also that the invasions of Persians and Goths prohibited the production of coinage. It seems that the areas invaded by the enemy correspond with the places where mintage has stopped. I suspect, though, that these invasions did not cause but only accelerated the process for the ending of civic issues. The same view is partly shared by Howgego, Greek Imperial Countermarks, p. 71

⁷¹ Carson, R.A.G., *Coins of the Roman Empire*, London/ New York: Routledge 1990, p. 234.

decreased in the middle of the third century, excavations tend to reveal a great number of *antoniniani*. During the first and second centuries until the reign of Gordian III, silver coins are not usually discovered in the course of excavations, mainly because people tended to lose low denomination coins. The pattern changed during the third century when silver coinage lost its intrinsic value⁷². It is apparent that whoever was involved in minor commercial activities would use his silver coins (*antoniniani*) in the local market and he would not bother if he lost one or two of them in the process.

There is a tendency for mixed coin hoards to appear during the mid-third century. There is one hoard from Syria, Iafa [chart 74] that contains both bronze coins and *antoniniani* and was lost during the Tetrarchic period. There are also two Greek hoards, Porto [chart 75] from Attica and Lesbos from the Aegean island [chart 76]. All of them present an increase in *antoniniani* after the reign of Gordian (when the overall production of *antoniniani* increased), which prevailed over the number of bronzes by the reign of Gallienus. Especially the Iafa hoard that was lost in a later period shows that by the second half of the third century there was no choice but the use of *antoniniani*.

Excavation finds from Greece, Asia Minor and Syria in most cases show a substantial increase of *antoniniani* in comparison with bronze coins during or after the reign of Gordian III. The bronze coins from the Patras excavations that decline during the reign of Philip are partly substituted by the *antoniniani*, which start rising during Gordian III in order to form their highest peak by the reign of Gallienus [chart 77]. In Athens both bronzes and *antoniniani* rise during the reigns of Maximinus and Gordian III respectively and they both form high peaks during Valerian/Gallienus [chart 78]. The bronze coins from the excavations in Corinth decline during the reign of Trajan Decius while at the same time the number of *antoniniani* rises beyond the number of bronze coins [chart 79]. In Asia Minor, Pergamos, *antoniniani* form their first peak during the reign of Gordian III and subsequently they continue rising until they shape peaks similar to the peak of bronze coinage by the reign of Trebonianus Gallus [chart 80]. Coin finds from Sardis show also that the number of *antoniniani*

⁷² For localised circulation of coinage see chapter 4.

⁷³ The proliferation of *antoniniani* in the middle of the third century is attested also in Britain: Fulford, M., 'The economy of Roman Britain', in M. Tod (ed.), Research on Roman Britain, 1960-1989, London: Society for the promotion of Roman studies 1989, pp. 175-201, esp. pp. 181-185 and 191-193. An attempt to explain this phenomenon led the above author to believe that the inhabitants, who belonged to higher social strata, may have used precious coins more often, thus increasing the degree of monetization.

that starts increasing during the reign of Gordian III reaches the same height as the bronze coinage by the reign of Trebonianus Gallus, and subsequently the number of both *antoniniani* and bronzes rise during the reigns of Valerian/Gallienus [chart 81]. A small peak of *antoniniani* is also attested in Ephesus during the reign of Gordian III. During the reign of Philip the number of bronze coins declines while *antoniniani* remain stable. Both bronze and silver coins form high peaks during the reigns of Trebonianus Gallus and Gallienus. Especially *antoniniani* remain higher until the end of the reign of Gallienus [chart 82]. One of the excavations from Syria that is very useful in this study is Antioch. The bronze coins that were found in this area are abundant throughout the third century. During the reign of Gordian III, though, the number of *antoniniani* rises until it meets the number of bronzes during the reign of Gallienus [chart 83]. Dura Europos is a site from eastern Syria that was excavated thoroughly. The problem is that we do not have a proper picture of the coins from the reigns of Valerian and Gallienus that circulated in the mid-third century because the fortress was destroyed during this period. It is thus probable that the *antoniniani* that were issued in mainstream mints during Valerian or Gallienus did not have the time to arrive at Dura before it was destroyed. Although there is a decline in the circulation of bronze during the reign of Philip, *antoniniani* do not form high peaks [chart 84].

Coins that come from local museums also demonstrate an increase in silver coins compared to a decline in bronze coins. The number of bronze coins as well as the number of *antoniniani* from Fethiye increases during the reigns of Severus Alexander and Gordian III respectively. *Antoniniani* remain high until the reign of Trebonianus Gallus while bronze coins remain high until the reigns of Valerian/Gallienus [chart 85]. Both bronze coins and *antoniniani* from Afyon form their highest peak during the reign of Gordian III and they both subsequently decline gradually [chart 86]. In the museum of Yiannena *antoniniani* reach the same height that bronze reached by the reign of Gordian III. Subsequently the number of *antoniniani* is higher than the number of bronzes [chart 87]. Also the *antoniniani* from the museum of Volos are more than the bronze by the reign of Gordian III, after whom both bronze and silver coinage form peaks almost at the same level [chart 88]. The only exception is the coin finds from the museum of Sinop, where *antoniniani* remain low throughout the first half of the third century and bronzes reach their highest peak by the reign of Gallienus [chart 89].

The evidence from Egyptian papyri could also demonstrate the high degree of monetization in the area even if in many transactions no cash actually changed hands. The use of credit within large estates was a widespread procedure that facilitated every day transactions especially when there was a shortage of coins. For example, salaries were accredited to the account of the workers and subsequently taxes were paid on their behalf by the estate. Even for external dealings with outsiders, e.g. independent craftsmen, the estate could transfer credit between accounts in private banks. Furthermore, the income of the estate, such as payments received from lessees and from larger-scale buyers, also came in a mixture of cash and credit. The transactions that were based on credit, still represented a large part of the monetary economy, since they did not symbolize fictitious values but they were founded on the values as these were established by the Roman monetary system⁷⁴.

As we have seen, in most cases the number of *antoniniani* increased so much that it reached the number of bronzes in circulation by the mid-third century. Individual sites reveal a continuing circulation in the Eastern Mediterranean that did not stop even when the production of civic coinages came to an end. It is probable that, instead of the empire succumbing in an underdeveloped economy, the monetary system was adjusted to the needs of the citizens. The so-called silver coinage that consisted mainly of billon *antoniniani* replaced the bronze coinage in every day transactions and facilitated minor commercial activities.

CONCLUSIONS

On the whole, there are indications that suggest changes in the output, weight standards and use of bronze coins during the third centuries. These changes should be connected with similar reforms concerning the silver coinage that took place in order to increase the revenues of the state and cover its military and political needs. The statistical analysis of excavation finds, coin hoards and stray finds from museums shows that the volume of bronze coinage increased after the reigns of Septimius

⁷⁴ The analysis of the Heronimos archive can be found in Rathbone, D., Rationalism and Rural Society in Third Century AD Egypt, Cambridge/New York/Portchester/Melbourne/Sydney: Cambridge University Press 1991, pp. 318-330; Regarding the phenomenon of shortage of coinage in antiquity see von Koen Verboven, 'Caritas Nummorum. Deflation in the Late Roman Republic', Münstersche Beiträge zum antiken Handelsgeschichte 16 (1997), pp. 40-78; The use of credit was a common banking process even before the third century AD, as it is demonstrated by Andreau, J., Banking and Business in the Roman World, transl. By J. Lloyd, Cambridge: Cambridge University Press 1999, pp. 15-18.

Severus and Caracalla in every province of the Eastern Roman empire. The rate of this increase, though, varied from city to city or from one area to another, a fact that allows us to assume that local economic factors were powerful enough to dictate the minting of bronze and that there was no central economic policy that could be implemented throughout the empire.

Although in the beginning of the third century more cities started minting and more coins were produced, bronze coinage did not seem to suffice. The needs of the citizens in some cities, such as Mylasa, for more bronze coins resulted in the flourishing of the black market concerning the exchange of coinage. The authorities of the cities as well as the bankers tried to eliminate this tendency because this way they could not receive the *agio*, commission from the exchange. In fact, the loss of *agio* in conjunction with the undervaluation of civic coinages may have forced the cities to stop minting altogether. By the mid-third century the bronze coins that were still produced equalled or surpassed in real value the debased *antoniniani* that circulated in the market.

The possible reluctance of the cities to open their mints made the interference of the emperor necessary. The task of minting new bronze coins was finally undertaken by the State and was confined to a few centralised mints, a procedure that reminds us of mainstream silver and gold coinage. At the same time the use of bronze coins was partly replaced in everyday transactions by the use of silver coins that lost their intrinsic value and were reduced to low denominations. Coin finds in the course of excavations attest the extensive use and loss of *antoniniani* in *agoras*, houses etc. and provide evidence which could suggest that the monetization of the empire was not decreased and that the population did not change its habits nor reverted into an underdeveloped economy. The monetary system went through several changes until it reached its final transformation during the reign of Diocletian⁷⁵.

⁷⁵ More information on this is included in Erism, K.T., Reynolds, J. and Crawford, M., 'Diocletian's currency reform; a new inscription', *Journal of Roman Studies* 61 (1971) pp. 171-177.

CONCLUSIONS

Undoubtedly, a researcher can only study a small section of the ancient world in the course of a thesis. This analysis, though, does not necessarily need to be overspecialized. The ancient economy is part of a wider political, military and social historical context, within which it has gradually developed. An economy should be seen as a lively institution that transforms every time an external factor exerts its influence on it. The primitive nature of ancient economies developed throughout the centuries, following the political evolution and the financial needs of both states and citizens. The Roman period was only one stage of this process.

The study of the monetary history of the eastern Roman empire is a small part of the economy but it is an important one. Although the analysis of patterns of production and circulation of coins in the provinces is an extremely specialized matter, it still leaves room for wider results. Numismatic evidence gives ample information on the rationality of the economy, the monetization of the empire, the inflationary tendencies, and the development of the monetary system. By looking at these phenomena, we can study effectively the changes in the production and circulation of coins during the third century AD.

The first question arising in my study regards the nature of the authorities that regulated the production of coinage. The division of mints in two categories – mainstream and provincial – could indicate that there were two different authorities responsible for mint output. The truth is that such a division could be misleading, since in some cases it served mainly for administrative purposes. First of all, the mints producing silver and gold coinages in the provinces (mainstream) were always under the control of the central government. The reasons for this become clear when we take into consideration the fact that precious metal coinage was produced in adequate quantities to cover imperial expenses. The maintenance of the army and the administrative mechanism, the construction of elaborate buildings, and the distribution of largesses constituted the main financial burdens of the emperor, who used cash in most instances. A tight control over the production of precious metal coins was probably essential to the central authorities that needed money to pay the wages. Furthermore, new issues of debased silver coins that potentially kept their nominal value brought additional profits to the Roman treasury. The stability of the

Roman monetary system allowed some debasement of precious metal coins without causing any imbalances to the exchange rate.

On the other hand, the role of the authorities that controlled and profited from those mints which issued bronze civic coins, has long been the topic of historical debate. The role of bronze coinage in the Roman economic system differed from the role of precious metal coinage. It seems that the production of bronze coins covered mainly the needs of local markets and facilitated retail trade within a city or neighbouring regions. Therefore, it is possible that the emperor did not have a direct interest in the control of these mints, since he would not use their output directly for payments. The evidence allows us to assume that the cities of the eastern provinces were responsible for the production of bronze civic issues that circulated in the surrounding areas. The emperor allowed these activities, while during the third century AD he probably also regulated them, because of the possible reluctance of the cities to produce more bronze.

The supply of precious metal coinage in the circulation pools of the eastern provinces was achieved mainly through the payments of the army. These payments probably formed the main expense of the state, although provincial administration may also have been expensive. Roman soldiers used to receive at least one third of their salary in cash. The money was used to buy a variety of goods, which were not supplied by the army. Also, administrative officials in the eastern provinces probably received their pay in silver or gold coins issued by mainstream mints. Precious metal coinage was not the only coinage connected specifically to army payments. We know that a number of bronze coins issued in Rome or other mainstream mints arrived at the frontiers or at other highly militarized areas. The soldiers probably participated actively in commercial transactions, an involvement which eventually affected local economies. The exchange of silver coins for bronze in these markets could have demanded also the issue of imperial bronzes, if civic coins were not abundant in the area. On the other hand, civic mints may have been forced into issuing more coins than usual in order to cover the needs arising from the presence of permanent or temporary troops in the cities.

The significance of the army in the monetization of the empire, the circulation of precious metal coinage and the development of local economies differed from one area to another. A comparative study of the silver and gold coins found in the northern and the eastern frontiers produces dissimilar results. The arrival of

substantial army contingents in the Balkans during the first and the second centuries AD caused the foundation of several military camps and civil settlements near the frontiers. A number of colonies were also founded during the Flavian, Trajanic and Hadrianic periods. Economic developments followed the urbanization of the region. Newly established markets covered the needs of the soldiers and of the recently settled population. Therefore, more money was in circulation, as the number of coin hoards and excavation finds indicates. On the contrary, the army at the eastern frontier did not bring the same changes in the monetization or in the urbanization of the area. Archaeological surveys in a number of fortresses did not reveal any coins or only revealed very small numbers. The phenomenon can be observed particularly in the provinces of Asia Minor, which were near the eastern frontier. Only the fortresses in the regions of the Black Sea and the Syrian provinces differed. The larger number of silver coins found there indicates that probably long-distance trade – rather than the soldiers – caused a higher degree of monetization of these areas. All things considered, it seems that the army played a significant role in the supply of precious metal coinage in the provinces but it did not affect significantly the level of monetization of individual regions.

We have already seen that the existence of precious metal coinage in a site could indicate the role of the army in the supply of coins from Rome or other mainstream mints to the eastern provinces. Even if the role of the army in the monetization of the empire was not decisive, the troops did affect the circulation of coins to a certain degree. We can analyze the inter-regional circulation of coinage as a result of soldiers moving from one province to another through the study of bronze civic coins. The soldiers' movements become evident in fortresses such as Dura Europos, a site that has been excavated thoroughly. Civic bronze coins from the distant mints of Peloponnese and Pontus found in Dura Europos indicate the transfer of soldiers from these provinces to the eastern frontier. These civic coins together with the bronze coins from mainstream mints issued in order to facilitate the participation of soldiers in retail transactions, could show the significance of the army in the establishment of local markets where both regional and long-distance trade flourished. In these cases, the monetization of small areas around the military settlements was probably inevitable. In other instances, though, the army did not affect local circulation of bronze coins. In particular, imperial bronze coins found

abundantly in some areas (eg. Peloponnese, Cyprus, Rhodes, Thrace, Lycia) cannot be connected with any movement of the army.

State expenses could not have been the only factors behind the distribution and circulation of coins. The evidence from silver hoards from the eastern provinces which consisted of various denominations and were issued in several mints, indicates that coins were not part of payments but were accumulated over a long period of time. These treasures probably belonged to wealthy members of Roman society, who were involved in profitable enterprises. Trade, estate holding and banking seemed to be the most preferable economic activities. The management of such business probably demanded also the use of money in the form of coins. However, we cannot exclude the possibility that merchants used to exchange one product for another. Also, we cannot ignore the fact that, in certain instances, credit facilitated the transactions of estate holders or other farmers. Furthermore, the political obligations of members of the elite and the management of their households caused substantial expenses to them that involved also the use of money.

Among the activities mentioned above only movements of merchants can be identified through the study of coins. The structure of coins from silver hoards, excavation finds and museums reveals patterns of circulation in the eastern Mediterranean. The comparison of coins coming from highly urbanized areas or ports in Greece and Asia Minor reveals certain similarities. It seems that the Mediterranean Sea, rivers and roads facilitate movements of people and products through several trade routes. Eventually these routes allowed the creation of circulation pools. The main pools that have been identified are a) Syria, b) Northern Greece and Northern Turkey, c) The Southern Aegean Sea, d) Southern Turkey, and e) Eastern Anatolia. Material from more museums or excavation sites will help us establish the exact boundaries of these regions.

Patterns of bronze coins in the eastern provinces reveal quite a heterogeneous picture of circulation. According to the distance that a coin would travel, I managed to divide the type of trade that took place in a specific area in three categories: a) long-distance, b) regional and c) local. Bronze civic coins, which were issued in one mint and which later traveled to a remote province indicate the possibility of long-distance commercial activities. The cities where most of these coins have been found are large harbours (Corinth, Patras, Athens), islands on trade routes (Cyprus, Rhodes), or inland cities on trade routes (Ankara, Sardis, Antioch). It is possible that rich

merchants who traveled throughout the empire carried with them not only silver and gold coins but also small change for their daily transactions. Other circulation pools consist of bronze coins that were minted mainly in neighbouring provinces. There is a strong possibility that merchants and perhaps other travelers visited these areas and spent coins in small denominations during their trip. It seems that it was possible to use coins from a specific civic mint in any part of the empire, since the bronze denominations were part of the assimilated Roman monetary system. However, this potential remained theoretical and has not been explored further in practical terms. Apparently, the circulation of the majority of civic issues was restricted to the region of their origin. This phenomenon indicates that small denominations were designed to facilitate small-scale retail trade among local populations.

The study of both bronze and precious metal coinages indicates that the monetary economy of the Roman empire was not integrated. On one hand, the circulation pools of bronze coins are rather small and bear certain individual characteristics that we do not encounter anywhere else. On the other hand, the circulation pools of silver coins are more extensive. Inter-regional trade routes probably created economic zones, such as harbours and major cities in the mainland, within which certain coins were used. These zones, though, divided rather than united the eastern provinces into wide areas of circulation. Eventually, the persistent individuality of these areas worked against the monetary integration of the empire.

The monetary economy seemed to be stable for the first and the second centuries, until external factors prompted its transformation at the beginning of the third century AD. Political and military upheaval, which characterized the Severan period and continued later during the period of Military Anarchy, caused a financial strain that eventually affected the balance of imperial revenues and expenses. Civil wars, the violent deaths of the emperors, brigandage, earthquakes, barbaric raids and the wars with Persia weakened the Roman empire and drained the Treasury. The government sought several remedies in order to solve the most pressing financial problems; among them manipulation of coinage seemed to be the most preferable. An increase in taxes could have been another solution, but it was usually avoided because it could cause opposition from the people.

During the first two centuries AD the emperors did not hesitate to debase the *denarius*, when this seemed to be a necessary course of action. The debasement of

coinage to a limited extent did not alter the monetary system, while it allowed the State to increase its supply of coins. Septimius Severus followed this policy with particular zeal; the fineness of his *denarius* was reduced to 50 %. Later, his son, Caracalla, introduced a new silver denomination called the *antoninianus*. Although the *antoninianus* was the equivalent of 1½ *denarii*, in fact it was exchanged at the value of 2 *denarii*. The Military emperors continued changing both the weight standards and fineness standards of the precious metal coinage, while the *antoninianus* became the most popular silver coin in circulation. By the end of the reign of Gallienus the fineness of the *antoniniani* had fallen to 2,5%.

The monetary reforms were accompanied by an increase in the production of silver coinage during the reigns of Septimius Severus and Caracalla, and, later, during the period of the Military Anarchy. Throughout this period, the silver coins of higher fineness of the previous emperors were withdrawn from circulation. The mints melted them down and re-issued them in a more debased form. With this expedient the State could put in circulation more coins, while using the same amount of silver bullion. Emperors managed to meet the increasing demands of the army for higher wages with the help of this procedure.

On the other hand, the emperors avoided the debasement of gold coins because they were at the basis of the whole monetary system. Until the modification of exchange rates, the central government removed most gold coins from circulation or decreased their production. The reason behind such a decision could have been the fear of the emperor that the overvaluation of the *denarius* could cause the undervaluation of the *aureus*, if the exchange rates remained the same. In this case, citizens would have melted down the gold coins and used them as bullion, since the raw metal still retained its full value. Eventually, the fineness of the *denarius* was reduced so much that the exchange rates could not continue to be the same. The weight of the *aureus* had to be reduced in order to meet the new standards. After all, such an action would guarantee the avoidance of the devaluation of gold coinage.

The Roman monetary system included also the use of bronze coins. Therefore, changes in the weight standards of silver and gold coins could not have left bronze coinages unaffected. In fact, we notice the presence of value countermarks on civic issues from the mints of western Asia Minor and Bithynia in the middle of the third century AD. These countermarks suggest that the value of coin which was easily recognisable during the first two and a half centuries AD could not be

acknowledged any more. The authorities had to inscribe the new values in an understandable way for the inhabitants of the eastern provinces. It seems that denomination marks during this period became necessary in order to avoid misunderstandings or even fraud. This evidence suggests that the authorities tried to keep the exchange rate of silver : bronze stable possibly until the reign of Gallienus.

The consequences resulting of the situation described above were multiple. Until the third century, the main reasons for the production of new issues from civic mints were three-fold: A) The prestige of the city and the honour bestowed upon the magistrate, who undertook the financial burden of producing civic issues. B) The bronze coins, which were overvalued in relation to bronze bullion, allowed a small profit to the issuing authorities. C) The imperial visits to the eastern provinces or the movements of troops increased the need of bronze coins, which would facilitate retail trade in the area. By the middle of the third century AD, or even earlier, the profitability of the production of bronze coinage changed substantially. The problems probably started when Septimius Severus decided to debase the *denarius*; the real value of bronze coins in comparison to the real value of silver coins probably increased. If the bronze coins were not overvalued any more, then the cities that used to buy bronze bullion in order to transform it into overvalued coins possibly lost their revenue. In some cases, they may even have lost money in the process. The prestige of the city or the honour of the magistrates may not have been considered as important as the financial loss. The timely action of the emperors may have been crucial in order to keep the mints open and allow continuation of the production of civic issues. The centralized organization of civic mints in Asia Minor in the early third century could have facilitated such a decision.

On the other hand, the production of bronze coins increased in order to meet the increase of silver coins in the market. There was an evident need of both precious and base metal coins during transactions. It seems, though, that the inevitable increase of bronze coins was not as high as expected. Numismatic evidence from museums shows that the production of bronze did not exceed or even match the production of silver in certain areas. A dearth of coinage in the market was probably felt already during the reign of Caracalla. A new phenomenon probably appeared in more than one city: the exchange of coinages in the black market, which needed the interference of the emperor in order to be suppressed. We do not know how long this

situation lasted, but the problem probably disappeared only when the combined efforts of the cities achieved a higher increase in the production of bronze coinage.

The continued debasement of silver coins, the increase in their production, the end of civic coinages, and the failure of gold to support the infrastructure of the monetary system eventually led to its transformation. During the reign of Gallienus the 'silver' *antoniniani* replaced bronze coins in circulation. Their increasing numbers in excavations could be interpreted as a change in the role of silver coinage. The *antoniniani* probably were used instead of bronze coins in retail trade. The population would estimate the prices according to the real value rather than the nominal value of the coins. In the middle of the third century more pieces of 'silver' coins would be necessary to purchase an item sold for fewer coins only 50 years before. On the other hand, silver and gold bullion would probably play the role that precious metal coinages played during the previous centuries. Major transactions could not be conducted without the use of raw metal.

In my study I have identified three different factors that affected the production and circulation of coinage throughout the Roman empire: a) the emperor, b) the elite and c) the rest of the population. The emperor was interested in the amelioration of his finances regardless of the needs of his subjects. He never tried to impose a specific economic policy, which could lead to long-lasting results. His monetary reforms were designed to be temporary and solve his immediate financial problems. The upper classes, on the other hand, did not participate in the production or supply of coinage. In fact, they used the coins that were already in circulation for their private business activities. These activities required the presence of precious metal coinage that was guaranteed by a strong Roman State. Merchants, bankers and other entrepreneurs moved coins from one area to the other creating unified circulation pools. Finally, the lower classes received bronze coins either by the local authorities or by the imperial mints. These coins were used in local markets and facilitated retail transactions. Although the value of these denominations was small, the significance of these coins for the monetary economy was high. Precious metal coinages were strongly connected to bronze coinages and both of them were exchanged at specific rates.

The different parts of the monetary economy functioned perfectly together only when they cooperated properly. From this perspective, an economy resembles a chain; if one of the links (production, distribution, weight standards) changes, the

other ones needed to adjust. Furthermore, the economy was intimately connected to the political and social conditions of a specific period. When politics or societies altered then parts of the economy underwent modification and restructuring. Even if the authorities were not aware of the extent of the changes or they did not have the knowledge to control the transformation, the economic mechanism would still follow its natural course.

BIBLIOGRAPHY

- Abbot, F.F. and Johnson, A.C., Municipal Administration in the Roman Empire, Princeton: Princeton University Press 1926.
- Abrams, P. and E. Wringley (eds.), Towns in Societies, Cambridge: Cambridge University Press 1978.
- Adams, C.E.P., 'Supplying the Roman army: O.Petr.245', Zeitschrift für Papyrologie und Epigraphik 109 (1995), pp. 119-124.
- Αγαλοπούλου, Π., Θέματα νομισματοκοπίας και νομισματικής κυκλοφορίας των Πατρών, Ph.D. thesis, University of Ioannina 1994.
- Akarça, A., Les monnaies grecques de Mylasa, Paris: Maisonneuve 1959.
- Alcock, S.E. (ed.), The Early Roman Empire in the East, Oxbow Monograph 95, Oxford 1997.
- Alföldi, G., Ιστορία της ρωμαϊκής κοινωνίας, transl. in Greek by Angelos Chaniotis, 2nd ed., Athens: Morphotico Idryma Ethikes Trapezes 1992.
- Alföldi, G., 'Eine Bauinschrift aus dem Colosseum', Zeitschrift für Papyrologie und Epigraphik 109 (1995), pp. 195-226.
- Alston, R., 'Roman military pay from Caesar to Diocletian', Journal of Roman Studies 84 (1994), pp.113-123.
- Amandry, M., Remy, B. and B. Ozcan, 'La circulation monétaire dans le Pont à l' époque impériale à travers les collections numismatiques du Musée de Tokat', in M. Amandry and G. Le Rider (eds.), Trésors et circulation monétaire en Anatolie antique, Paris: Bibliotheque Nationale 1994, pp. 119 ff.

- Amandry, M. and G. Le Rider (eds.), Tresors et circulation monetaire en Anatolie antique, Paris: Bibliotheque Nationale 1994.
- Andreau, J., Briant, P. and R. Descat (eds.), Economie antique: Prix et formation des prix les économies antiques, Entretiens d'archéologie et d'histoire, Saint- Bertrand-de-Comminges 1997.
- Andreau, J., Banking and Business in the Roman World, transl. By J. Lloyd, Cambridge: Cambridge University Press 1999.
- Archontidou-Argyri, A. and G. Labarre, 'Un trésor d' époque impériale à Mytilène', Revue Numismatique 1966, pp. 119-140.
- Ariel, D.T., 'A survey of coin finds in Jerusalem', Liber Annus 32 (1982), pp. 247 ff.
- Arslan, M., 'The Manyas Hoard of denarii', in R. Ashton (ed.), Studies in Ancient Coinage from Turkey, London: Spink/ Oxford: Oxbow 1996, pp. 31ff.
- Arslan, M., 'A third century AD hoard of bronzes, principally of Alexandreia Troas', in R. Ashton (ed.), Studies in Ancient Coinage from Turkey, London: Spink/ Oxford: Oxbow 1996, pp. 43 ff.
- Ashton, R. (ed.), Studies in Ancient Coinage from Turkey, London: Spink/ Oxford: Oxbow 1996.
- Atlan, S., 1947-1967 Yillari Side Kazilari Sirasinda Elde Edilen Sikkeler, Ankara 1976.
- von Aulock, H., Kleinasiatische Münzstätten V: Die Homonoia-Münzen von Mytilene', Jahrbuch für Numismatik und Geldgeschichte 19(1969) pp. 83-88.

- Austin, M, (Ed.), The Hellenistic World from Alexander to the Roman Conquest. A Selection of Ancient Sources in Translation, Cambridge: Cambridge University Press 1981.
- Austin, M., Harries, J. and C. Smith (eds.), Modus Operandi: Essays in Honour of Geoffrey Rickman, BICS Supplement, Institute of Classical Studies, University of London 1998.
- Babelon, E., Inventaire sommaire de la Collection Waddington, Paris 1897.
- Babelon, E., 'Le faux prophète Alexandre d' Abonotichos', Revue Numismatique 4, Nr. 4 (1900), pp.1-2.
- Ball, W., 'Seh Qubba, A Roman frontier post in Northern Iraq', in D.H. French and C.S. Lightfoot (eds.), The Eastern Frontier of the Roman Empire, Proceedings of a Colloquium Held at Ankara in September 1988, I, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989, pp. 7-18.
- Bannert, H. and Piccottini, G., Die Fundmünzen von Magdalensberg, Klagenfurt: Verlag des Landes museum f. Kärnten 1972.
- Bastien, P., Le buste monétaire des empereurs romains. Numismatique Romaine XIX, I, Wetteren: Numismatique Romaine 1992.
- Baydur, N., 'Die Münzen von Attaleia in Pamphylien', Jahrbuch für Numismatik und Geldgeschichte 25 (1975), pp. 33-45.
- Baydur, N., 'Die Münzen von Attaleia in Pamphylien', Jahrbuch für Numismatik und Geldgeschichte 26 (1976), pp. 37 ff.
- Beckman, M., 'Ancient coins from shipwrecks', The Anvil, vol. 8, no. 2 (June 1998), pp. 19-21.

- Bell, H.W., 'Coins', in Sardis: Excavations 1910-1914, vol. XI, Leiden: Brill 1916.
- Bellinger, A., 'Coins from Jerash', American Numismatic Society, Numismatic Notes and Monographs 81, New York 1938.
- Bellinger, A.R., The Syrian tetradrachms of Caracalla and Macrinus, American Numismatic Society, Numismatic Studies 3, New York 1940.
- Bellinger, A.R., 'The Coins', in M.I. Rostovtzeff, A.R. Bellinger, F.E. Brown, N.P. Toll and C.B. Welles (eds.), The Excavations at Dura, Final Report, VI, New Haven: Yale University Press 1949.
- Bellinger, A.R., 'Troy: The coins', in C.W. Blegen (ed.), Troy. Excavations Conducted by the University of Cincinnati, 1932-1938, Supplementary Monograph 2, Princeton: Princeton University Press 1950-1958.
- Bellinger, A.R., 'Greek mints under the Roman empire', in R.A.G. Carson and C.H.V. Sutherland, Essays in Roman Coinage Presented to Harold Mattingly, London: Oxford University Press 1956, pp. 137-148.
- Bellinger, A.R., 'The Boston College Hoard', American Numismatic Society, Museum Notes 10 (1962), pp. 43-50.
- Beloch, J., Die Bevoelkerung der griechisch-roemischen Welt, Leipzig: Duncker & Humblot 1886.
- Bendall, S., 'An eastern hoard of Roman Imperial silver', Numismatic Chronicle 6 (1966), pp. 167-170.
- Ben-David, A., Jerusalem und Tyros: Ein Beitrag zur palästinischen Münz- und Wirtschaftsgeschichte (126 a.C. - 57 p.C.), Basel: Mohr 1969.

- Berger, F., 'Roman coins beyond the northern frontiers: some recent considerations', in C.E. King and D.G. Wigg, Coin Finds and Coin Use in the Roman World: The thirteenth Oxford Symposium on Coinage and Monetary History 25. – 27. 3. 1993, Berlin: Mann 1996, pp. 55-61.
- Betlyon, J.W., Coins, Commerce, and Politics: Coins from the Limes Arabicus Project, 1976-1985, pp. 655-689.
- Bland, R.F, Burnett, A.M. and S. Bendall, 'The Mints of Pescennius Niger in the Light of Some New Aurei', Numismatic Chronicle 147 (1987), pp. 65-172.
- Bland, R., 'Six hoards of Syrian tetradrachms of the third century AD', Numismatic Chronicle 151 (1991), pp. 1-34.
- Bland, R., 'The last coinage of Caesarea in Cappadocia', R. Martini and N. Vismara (eds.), in Glaux: Collana di Studi e Ricerche di Numismatica, Ermanno A. Arslan Studia Dicata, Milan 1991, pp.214-231.
- Bland, R. and P. Aydemir, 'The Haydere Hoard and other hoards of the mid third century from Turkey', in C.S. Lightfoot (ed.), Recent Turkish Coin Hoards and Numismatic Studies, Oxford: Oxbow 1991, pp. 93ff.
- Bland, R., 'The bronze coinage of Gordian III from Caesarea in Cappadocia', in R. Ashton (ed.), Studies in Ancient Coinage from Turkey, London: Spink/ Oxford: Oxbow 1996.
- Bland, R., 'The development of gold and silver coin denominations, AD 193-253', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World, The thirteenth Oxford Symposium on Coinage and Monetary History 25.-27. 3. 1993, Berlin: Mann 1996, pp. 63-100.

- Blümel, W., Inschriften griechischer Städte am Kleinasien: Die Inschriften von Mylasa, I, vol. 34, Bonn: R. Habelt 1987.
- Bogaert, R., Les origines antiques de la banque de depot: une mise au point accompagnée d' une esquisse des opérations de banque en Mésopotamie, Leiden: Sijthoff 1966.
- Bogaert, R., Banques et banquiers dans les cites grecques, Leiden: A.W. Lijtoff 1968.
- Bolin, S., State and Currency in the Roman Empire to 300 AD, Stockholm: Almgvist and Wiksell 1958.
- Boren, H.C., 'The sources of Cicero's income: Some suggestions', Classical Journal 57 (1961), pp. 17-24.
- Boren, H.C., 'Studies relating to the *stipendium militum*', Historia 32 (1983) pp. 427-460.
- Bossu, C., 'M' Megonius Leo from Petelia (Regio III): A private benefactor from the local aristocracy', Zeitschrift für Papyrologie und Epigraphik 45 (1982), pp. 155-165.
- Bost J.-P., Campo, M, Gurt, J.-M., 'Hallazgos de aurei y solidi en la Peninsula Iberica: introduccion a su circulacion en epoca imperial', Numisma 33 (1983), pp. 137-176.
- Bost, J.-P., Campo, M., Gurt, J.-M., 'Trouvailles d' aurei et de solidi dans la péninsule iberique', in C. Brenot and X. Loriot (eds.), L' or monnaye III: Trouvailles de monnaies d' or dans l' occident romain. Cahiers Ernest-Babelon, 4, Paris: Centre National de la Recherche Scientifique 1992 , pp. 33-89.

- Braund, D.C., 'Coping with the Caucasus: Roman responses to local conditions in Colchis', in D.H. French and C.S. Lightfoot, The Eastern Frontier of the Roman Empire: Proceedings of a Colloquium Held at Ankara in September 1988, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989, pp. 31-39.
- Braund, D., Georgia in Antiquity: A History of Colchis and Transcaucasian Iberia 550 BC- AD 562, Oxford: Clarendon Press 1994.
- Braund, D. and Inaishvili, N., 'Excavation reports: The Lazika project', Anatolian Studies, Research Reports 1998.
- Breeze, D.J., 'Pay grades and ranks below the centurionate', Journal of Roman Studies 61 (1971), pp. 130-135.
- Breglia, L., 'Circolazione monetale ed aspetti di vita economica a Pompei', in Gaetano Macchiaroli (ed.), Pompeiana: Raccolta di studi per il secondo centenario degli scavi di Pompei, Naples 1950, pp. 41-59.
- Brenot, C. and X. Lorient (eds.), L'or monnaie III. Trouvailles de monnaies d'or dans l'occident romain. Cahiers Ernest-Babelon, 4, Paris: Centre National de la Recherche Scientifique 1992.
- Brenot, C., Metzger, C., 'Trouvailles de bijoux monétaires dans l'occident romain', in C. Brenot and X. Lorient (eds.), L'or monnaie III. Trouvailles de monnaies d'or dans l'occident romain au IIIe siècle de notre ère, Cahiers Ernest-Babelon, 4, Paris: Centre National de la Recherche Scientifique 1992, pp. 315-371.
- Broughton, T.R.S., 'Roman Asia Minor', T. Frank (ed.), An Economic Survey of Ancient Rome, IV, Baltimore: John Hopkins University Press 1938.

- Brunt, P.A., 'The *equites* in the Late Republic', in M.I. Finley (ed.), Second International Conference of Economic History, Trade and Politics in the Ancient World, I, Mouton 1965, repr. New York: Arno Press 1979, I, pp. 117-149.
- Brunt, P.A., 'Free labour and public works at Rome', Journal of Roman Studies 70 (1980), pp. 81-100.
- Brunt, P.A., 'The revenues of Rome', Journal of Roman Studies 71 (1981), pp. 161-172.
- Bruun, P., 'Quantitative analysis of hoarding in periods of coin deterioration', in C. Carcassone and T. Hackens (eds.), PACT: Statistics and Numismatics 5, Strasbourg 1981, pp. 355-364.
- Burnett, A., 'The authority to coin in the Late Republic and Early Empire', Numismatic Chronicle 147 (1977), pp. 37-63.
- Burnett, A., Coinage in the Roman World, London: Seaby 1987.
- Burnett, A. – Amandry, M. – Ripolles, P.P., Roman Provincial Coinage, From the Death of Ceasar to the Death of Vitellius, I, London: British Museum Press / Paris: Bibliothèque Nationale 1992.
- Burnett, A., Amandry, M., Carradice, I., Roman Provincial Coinage: From Vespasian to Domitian (AD 69-96), II, Part I, London: British Museum Press /Paris: Bibliothèque Nationale 1999.
- Burton, G.P., 'Proconsuls, assizes and the administration of justice under the empire', Journal of Roman Studies 65 (1975), pp. 92-106.
- Butcher, K., Roman Provincial Coins, London: Seaby 1988.

- Butcher, K., 'The colonial coinage of Antioch-on-the-Orontes: c. AD 218-53', Numismatic Chronicle 148 (1988), pp. 63-75.
- Butcher, K., 'Two notes on Syrian silver of the third century AD', Numismatic Chronicle 144 (1989), pp. 169-190.
- Butcher, K., 'Coinage and currency in Syria and Palestine', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World, The Thirteenth Oxford Symposium on Coinage and Monetary History 25. – 27. 3. 1993, Berlin 1996, pp.101-112.
- Butcher, K. and M. Ponting, 'Rome and the East. Production of Roman Provincial silver coinage for Caesarea in Cappadocia under Vespasian, AD 69-79', Oxford Journal of Archaeology 14 (1995), pp. 63-77.
- Buttrey, T.V., 'Dio, Zonaras and the value of the Roman *aureus*', Journal of Roman Studies 51 (1961), pp. 40-45.
- Buttrey, T.V., Johnston, A., MacKenzie, K.M. and M.L. Bates, 'Greek, Roman and Islamic Coins from Sardis', in Archaeological Exploration of Sardis, 1958-1972, vol. XI, Cambridge Mass.: Harvard University Press 1981.
- Buttrey, T.V., 'The President's address: Exchange and circulation at Pergamum in the second century AD', Numismatic Chronicle 151 (1991), pp. i ff.
- Buttrey, T.V., 'Calculating ancient coin production: Facts and fantasies', Numismatic Chronicle 153 (1993), pp. 335-351, esp. pp. 338-339.
- Buttrey, T.V., 'Calculating ancient coin production II: Why it cannot be done', Numismatic Chronicle 154 (1994), pp. 341-352.

- Buttrey, S.E. and T.V. Buttrey, 'Review Article: Calculating ancient coin production again', American Journal of Numismatics 9 (1997), pp. 113-135.
- Callu, J.-P., La politique monétaire des empereurs romains de 238 a 311, Paris: E. de Boccard 1969.
- Callu, J.P., Les monnaies romaines, Fouilles d' Apamée de Syrie, 8, I, Brussels 1979.
- Callu, J.P. and X. Lorient., L'or monnaie II. La dispersion des aurei en Gaule romaine sous l' empire. Cahiers Ernest-Babelon 3, Paris: Centre National de la Recherche Scientifique 1990.
- Callu, J.-P. and Lorient, X., 'L' or monnaie', in C. Brenot and X. Lorient (eds.), L' or monnaie III. Trouvailles de monnaies d' or dans l' occident romain. Cahiers Ernest-Babelon, 4, Paris: Centre National de la Recherche Scientifique 1992, pp. 21-32.
- Carcassone, C and T. Hackens (eds.), PACT: Statistics and Numismatics 5, Paris 17-19 Sept. 1979, Strasbourg 1981.
- Carreli, S., 'Alcune osservazioni sul portorium Asiae', in B. Virgilio (ed.), Studi ellenistici VIII, Pisa 1996, pp. 175-189.
- Carradice, I., Coinage and Finances in the Reigns of Domitian (AD 81-96), BAR International Series 178, Oxford 1983.
- Carradice, I. and M. Price, Coinage in the Greek World, London: Seaby 1988.
- Carradice, I., 'A new introduction to the Flavian coinage', in M. Austin, J. Harries and C. Smith (eds.), Modus Operandi: Essays in Honour of Geoffrey Rickman, BICS Supplement, Institute of Classical Studies, University of London 1998, pp. 93-117.

- Carson, R.A.G. and C.H.V. Sutherland (eds.), Essays in Roman Coinage Presented to Harold Mattingly, London: Oxford University Press 1956.
- Carson, R.A.G., Coins of the Roman Empire in the British Museum: Severus Alexander to Balbinus and Pupienus, vol. VI, London: Trustees of the British Museum 1962.
- Carson, R.A.G., 'The Hama Hoard and the eastern mints of Valerian and Gallienus', Berytus 17 (1968), pp. 123-142.
- Carson, R.A.G., Coins of the Roman Empire, London/ New York: Routledge 1990.
- Casey, J. and R. Reece (eds.), Coins and the Archaeologists, 2nd ed., Oxford: British Archaeological Reports 1974.
- Casey, P.J., Roman Coinage in Britain, Aylesbury, Bucks: Shire Publications 1980.
- Casey, P.J., Understanding Ancient Coins: An Introduction for Archaeologists and Historians, London: Batsford 1986.
- Cesano, L., 'Nuovi ripostigli di denari di argento dell' impero romano', in Atti e memorie dell' Istituto Italiano de Numismatica, V, Rome, pp. 57 ff.
- Champlin, E., Final Judgements: Duty and Emotion in Roman Wills, 200 BC - AD 250, Berkeley: University of California Press 1991.
- Chastagnol, A., Nicolet, C. and H. van Effenterre (eds.), Armées et fiscalité dans le Monde Antique, Colloque National du Centre National de la Recherche Scientifique, au Centre Universitaite Tolbiac de Paris I, 14-16

Octobre 1976, Paris: Edition du Centre National de la Recherche Scientifique 1977.

- Chen, E.K.Y., Jao, Y.C., Introduction to Modern Economics, 2nd ed., Hong Kong: The MacMillan Press 1985.
- Christiansen, E., The Roman Coins of Alexandria: Quantitative Studies, Aarhus, Denmark: Aarhus University Press, 1988.
- Cole, T.J., 'The lifetime of coins in circulation', Numismatic Chronicle (1976), pp. 201-218.
- Cope, L.H., 'The Nadir of the Imperial Antoninianus in the Reign of Claudius II Gothicus, AD 268-270', Numismatic Chronicle, 7th ser., IX (1969).
- Corbier, M., 'Dévaluations et évolution des prix', Revue Numismatique 27 (1985), pp. 69-106.
- Cornell, T.J. and H.K. Lomas (eds.), Urban Society in Roman Italy, London: University College London Press 1993.
- Cox, D.H., 'The coins', in H. Goldman (ed.), Excavations at Gozlu Kule: Tarsus, the Hellenistic and Roman Periods, vol. I, Princeton: Princeton University Press, pp. 38 ff.
- Cox, D.H., 'Coins from the excavations at Curium, 1932-1953', American Numismatic Society, Numismatic Notes and Monographs, New York, 143 (1959).
- Crawford, M., 'Coin hoards and the pattern of violence in the Late Republic', Papers of the British School at Rome 37 (1969), pp. 76-81.

- Crawford, M., 'La monetazione di bronzo di Poseidonia-Paestum', Supplement to Annali: Istituto Italiano di Numismatica: Atti del III Convegno del Centro Internazionale di Studi Numismatici, Napoli 19-23 April 1971, vol. 18-19, Rome 1973, pp. 47-109.
- Crawford, M.H., Roman Republican Coinage, Cambridge: Cambridge University Press 1974.
- Crawford, M., 'Finance, coinage and money from the Severans to Constantine', H. Temporini (ed.), Aufstieg und Niedergang der römischen Welt, II, Berlin: de Gruyter 1975, pp. 560-593.
- Crawford, M., 'Numismatics', in M.H. Crawford and F. Millar (eds.), Sources for Ancient History, New York: Cambridge University Press 1983, pp. 187ff.
- D'Arms, J.H., Commerce and Social Standing in Ancient Rome, Cambridge, Mass.: Harvard University Press 1981.
- Davis, W.S., The Influence of Wealth in Imperial Rome, New York: The Macmillan Company 1910.
- De Callatay, F., 'Calculating ancient coin production: Seeking a balance', Numismatic Chronicle 155 (1995), p. 289-311.
- De Fine Licht, K. (ed.), Città e Architettura nella Roma Imperiale: Atti del Seminario del 27 Ottobre 1981 nel 25o anniversario dell' Accademia di Danimarca, Analecta Romana Instituti Danici, Suppl. 10, Odense: Odense University Press 1983.
- De Ligt, L., 'Demand, supply, distribution: The Roman peasantry between town and countryside: Rural monetization and peasant demand', Münstersche Beiträge zur antiken Handelsgeschichte 9 (1990), pp. 24-56.

- De Ligt, L., 'The Roman peasantry demand, supply, distribution between town and countryside II: Supply, distribution and a comparative perspective', Münstersche Beiträge zur antiken Handelsgeschichte 10 (1991), pp. 33-77.
- De Ligt, L., Fairs and Markets in the Roman Empire: Economic and Social Aspects of Periodic Trade in Pre-Industrial Society, The Netherlands: J.C. Gieben 1993.
- Depeyrot, G., Hackens, T. and G. Moucharte (eds.), Rythmes de la production monétaire, de l'antiquité à nos jours, Actes du colloque international organisé à Paris du 10 au 12 Janvier 1986, Louvain-la-Neuve, 1987.
- De Saulcy, F., 'Trouvaille de Iafa de Galilée, près Nazareth', Annuaire de la Societe Francaise de Numismatique, 3 (1968), pp. 350 ff.
- Develin, R., 'The army pay rises under Severus and Caracalla, and the question of *annona militaris*', Latomus 30(2), 1971, pp. 687-695.
- Dick, F., Die Fundmünzen der römischen Zeit in Österreich, IX, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1978.
- Dittenberger, Orientis Graeci Inscriptiones Selectae II, Lipsiae: S. Hirzel 1903- 1905.
- Domergue, C., Les mines de la péninsule ibérique dans l'antiquité romaine, Rome: Ecole française de Rome 1990, pp. 215-224.
- Dreher, M., 'Die *lex portorii Asiae* und der Zollbezirk Asia', Epigraphica Anatolica 26 (1996)pp. 111-127.
- Dumant, C., 'Les monnaies', Le sanctuaire de Baalshamin à Palmyre: Kleifunde, VI, Institut Suisse de Rome 1975.

- Duncan-Jones, R., The Economy of the Roman Empire: Quantitative Studies, 2nd ed., Cambridge: Cambridge University Press 1982.
- Duncan-Jones, R.P., 'Weight-loss as an index of coin-wear in currency of the Roman Principate', in G. Depeyrot, T. Hackens, G. Moucharte (eds.), Rythmes de la production monétaire, de l'antiquité à nos jours, Actes du colloque international organisé à Paris du 10 au 12 Janvier 1986, Louvain-la-Neuve, 1987, pp. 237-256.
- Duncan-Jones, R.P., 'Mobility and immobility of coin in the Roman empire', Annali: Istituto Italiano di Numismatica 36 (1989), pp.121-137.
- Duncan-Jones, R., Structure and Scale in the Roman Economy, Cambridge: Cambridge University Press 1990.
- Duncan-Jones, Money and Government in the Roman Empire, Cambridge: Cambridge University Press 1994.
- Duncan-Jones, R., 'The monetization of the Roman Empire: regional variations in the supply of coin types', in G.M. Paul (ed.), Roman Coins and Public Life under the Empire: E. Togo Salmon Papers, II, Ann Arbor: University of Michigan Press 1999.
- Edwards, K.M., Corinth. The Coins, 1896-1929, VI, Cambridge Mass.: Harvard University Press 1933.
- Elks, K.J.J., 'The eastern mints of Valerian and Gallienus: The evidence of two new hoards from western Turkey', Numismatic Chronicle 15 (1975), pp. 91-109.
- Engelmann, H. –Knibbe, D., 'Das Zollgesetz der Provinz Asia. Eine neue Inschrift aus Ephesos', Epigraphica Anatolica 14 (1989).

- Ergeç, A., 'The Kussakaya Hoard of *aurei*', in R. Ashton (ed.), Studies in Ancient Coinage from Turkey, London: Spink / Oxford: Oxbow 1996, pp. 37 ff.
- Erim, K.T., Reynolds, J. and Crawford, M., 'Diocletian's currency reform; a new inscription', Journal of Roman Studies 61 (1971) pp. 171-177.
- Esty, W.W., 'Estimation of the size of a coinage: a survey and comparison of methods', Numismatic Chronicle 146 (1986), pp. 185-215.
- Fellman, R. and Dunan, C., Le sanctuaire de Baalshamin a Palmyre: Kleifunde, VI, Rome: Institut Suisse de Rome 1969.
- Fink, R.O., Roman Military Records on Papyrus, Cleveland: American Philological Association 1971.
- Finley, M.I., 'Private farm tenancy in Italy before Diocletian', in M.I. Finley (ed.), Studies in Roman Property, Cambridge: Cambridge University Press 1976, pp. 103-121.
- Finley, M.I. (ed.), Studies in Roman Property, Cambridge: Cambridge University Press 1976
- Finley, M.I. (ed.), Second International Conference of Economic History, Trade and Politics in the Ancient World, I, Mouton 1965, repr. New York: Arno Press 1979.
- Finley, M., 'Max Weber and the Greek state', Finley, M. (ed.), Ancient History: Evidence and Models, London 1985, pp. 88-103.
- Finley, M., The Ancient Economy, 2nd ed., London 1985.

- Foss, C., 'A hoard of the third century AD from Pamphylia', Coin Hoards 5 (1979), pp. 37-40.
- Fraenkel, M., Alterthümer von Pergamon VIII 2, Berlin 1895.
- Franke, P.R., Kleinasien zur Römerzeit: Griechisches Leben im Spiegel der Münzen, München: Beck 1968.
- Franke, P.R., 'Zu den Homonoia-Münzen Kleinasiens', in E. Olshausen (ed.), Stuttgarter Kolloquium zur historischen Geographie des Altertums, Dec. 8-9 1980, Bonn: R. Habelt 1987, pp. 81-102.
- French, D., Roman Roads and Milestones of Asia Minor: An Interim Catalogue of Milestones, II, British Institute of Archaeology at Ankara, Monograph no. 9, BAR International Series 392 (ii), Oxford 1988.
- French, D.H. and C.S. Lightfoot (eds.), The Eastern Frontier of the Roman Empire, Proceedings of a Colloquium Held at Ankara in September 1988, I, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989.
- Fulco, W.J. and F. Zayadine, 'Coins from Samaria Sebaste', Annual of the Department of Antiquities of Jordan 25 (1981), pp. 197 ff.
- Fulford, M., 'The economy of Roman Britain', in M. Tod (ed.), Research on Roman Britain, 1960-1989, London: Society for the promotion of Roman studies 1989, pp. 175-201.
- Gara, A., Prosdiagraphomena e circolazione monetaria, Milan: Cisalpino-Goliardica 1976.
- Garnsey, P., 'Urban property investment', in M.I. Finley (ed.), Studies in Roman Property, Cambridge: Cambridge University Press 1976, pp.123-132.

- Garnsey, P. and C. R. Whittaker (eds.), Trade and Famine in Classical Antiquity, Cambridge: The Cambridge Philological Society 1983.
- Garnsey, P., Hopkins, K. and C.R. Whittaker (eds.), Trade in the Ancient Economy, London: Hogarth Press 1983.
- Garnsey, P., Food and Society in Classical Antiquity, Cambridge: Cambridge University Press 1999.
- Gill, D.W.J., 'Pots and trade spacefillers or objets d' art?', Journal of Hellenic Studies, 111 (1991), pp. 29-47.
- Gilmore, P.M., 'Caracalla's Silver Mints in Syria and Mesopotamia', Numismatic Circular, vol. 95, no. 4 (May 1987), pp. 109-110.
- Gioffredi, De R.-C., 'Legatum', in Ruggiero (ed.), Dizionario Epigrafico di Antichità Romane, IV, fasc. 1-30, Roma: Pasqualucci 1942-1958.
- Göbl, R., Die Fundmünzen der römischen Zeit in Österreich, III, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1976.
- Golenko, K., The Monetary Circulation of Colchis during the Roman Period, Leningrad 1964.
- Grant, M., The Coinage of Tiberius in Cyprus, Melbourne: University of Melbourne 1957.
- Grant, M., From Imperium to Auctoritas: A Historical Study of Aes Coinage in the Roman Empire, 49 BC – AD 14, 1st ed. (reprinted with corrections), London: Cambridge University Press 1969.

- Grierson, P., 'The president's address: The interpretation of coin finds', Numismatic Chronicle 1965, pp. i-xiii.
- Grierson, P., Numismatics, London/ New York: Oxford University Press 1975.
- Groenman-van Waateringe, W., 'Urbanization and the north-west frontier of the Roman empire', in W.S. Hanson and L.J.F. Keppie (eds.), Roman Frontier Studies 1979: Papers presented to the 12th International Congress of Roman Frontier Studies, III, BAR International Series 71(iii), Oxford 1980, pp. 1037-1044.
- Grose, S.W., Catalogue of the MacClean Collection of Greek Coins in the Fitzwilliam Museum, vol. III, Cambridge: Cambridge University Press 1929.
- Grunauer-von Hoerschelmann, S., 'The Severan Emissions of the Peloponnesus', Israel Numismatic Journal 6-7 (1982-1983), pp. 38-46.
- Guest, P., A Comparative Study of Coin Hoards from the Western Roman Empire, Ph.D. thesis, London 1994.
- Guidoboni, E., et al., Catalogue of Ancient Earthquakes in the Mediterranean Area up to the 10th century, Rome: Istituto nazionale di geofisica 1994.
- Hackens, T. and R. Weiller (eds.), Proceedings of the ninth International Congress of Numismatics, Berne, September 1979, Louvain-la-Neuve/Luxemburg 1982.
- Hackens, T., Moucharte, G. et al. (eds.), Proceedings of the XIth International Numismatic Congress, Brussels, September 8th-13th 1991, Louvain-la-Neuve 1993.

- Hamburger, H., 'A hoard of Syrian tetradrachms and Tyrian bronze coins from Gush Halav', Israel Exploration Journal 4 (1954), pp. 201 ff.
- Hamburger, H., 'A hoard of Syrian tetradrachms from Tiberias', Atiqot 2 (1956), pp. 133-145.
- Hanson, W.S. and L.J.F. Keppie (eds.), Roman Frontier Studies 1979: Papers presented to the 12th International Congress of Roman Frontier Studies, III, BAR International Series 71(iii), Oxford 1980.
- Harl, K.W., Civic Coins and Civic Politics in the Roman East AD 180-275, Berkeley/Los Angeles/London: University of California Press 1987.
- Harl, K., Coinage in the Roman Economy, 300 BC to AD 700, Baltimore/London: John Hopkins University Press 1996.
- Harper, R.P., 'Two excavations on the Euphrates frontier 1968-1974: Paḡnik Oreni (Eastern Turkey) 1968-1971, and Dibsi Faraj (Northern Syria) 1972-1974', in D. Haupt (ed.), Studien zu den Militärgrenzen Roms: Vorträge des 10. internationalen Limeskongresses in der Germania Inferior, II, Köln/Bonn 1977, pp.453-460.
- Harris, J.M., 'Coins found at Corinth: Report of the coins found in the excavation at Corinth during the years 1936-1939', Hesperia 10 (1941), pp. 143 ff.
- Harris, W.V., "Between archaic and modern: some current problems in the history of the Roman economy", in W.V. Harris (ed.), The Inscribed Economy: Production and Distribution in the Roman Empire in the Light of *Instrumentum Domesticum*, Proceedings of a conference at The American Academy in Rome on 10-11 January 1992, Journal of Roman Archaeology, suppl. 6, Ann Arbor, MI 1993, pp. 11-29.

- Harris, W.V (ed.), The Inscribed Economy: Production and Distribution in the Roman Empire in the Light of *Instrumentum Domesticum*, Proceedings of a conference at The American Academy in Rome on 10-11 January 1992, Journal of Roman Archaeology, suppl. 6, Ann Arbor, MI 1993.
- Harvey, J., Modern Economics: An Introduction for Business and Professional Students, 3rd ed., London: The MacMillan Press 1977.
- Head, B.V., Historia Nummorum: A Manual of Greek Numismatics, 2nd edition, Oxford: Clarendon Press 1911.
- Head, B.V., A Catalogue of the Greek Coins in the British Museum, Greek Coins of Caria, Cos, Rhodes etc., vol. 18, London: The Trustees of the British Museum 1897.
- Heil, M., 'Einige Bemerkungen zum Zollgesetz aus Ephesos', Epigraphica Anatolica 17 (1991), pp. 9-18.
- Hill, G.F. (ed.), British Museum Catalogue of Greek Coins of Lycia, Pamphylia and Pisidia, vol. 19, London: The Trustees of the British Museum 1897.
- Hill, G.H., A Catalogue of Greek Coins in the British Museum: Greek Coins of Cyprus, vol. 24, London: The Trustees of the British Museum 1904.
- Hill, G.F., 'A hoard of coins from Nineveh', Numismatic Chronicle 1931, pp. 160-170.
- Hopley, A.S., An Examination of Roman Bronze Coin Distribution in the Western Empire, A.D. 81-192, BAR International Series 688, Oxford 1998.
- Hodder, M.J., 'A hoard of silver *antoniniani*', Numismatic Circular 89, no. 3 (1981), p. 76.

- Hodder, M.J., 'A third century hoard', Numismatic Circular 89, no. 11 (1981), pp. 361-363.
- Hodgson, N., 'The East as part of the wider Roman imperial frontier policy', in D.H. French and C.S. Lightfoot, The Eastern Frontier of the Roman Empire: Proceedings of a Colloquium Held at Ankara in September 1988, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553(i), Oxford 1989, pp. 177-189.
- Hohlfelder, R.L., Kenchreai: Eastern Port of Corinth. The Coins, III, Leiden: Brill 1978.
- Hollard, D. and O. Bingol, 'Le trésor de Göktepe', in M. Amandry and G. Le Rider (eds.), Trésor et circulation monétaire en Anatolie antique, Paris: Bibliothèque Nationale de France 1994.
- Homolle, T., 'Une crise monétaire: Au IIIe siècle de l'ère chrétienne (Inscription de Mylasa)', Bulletin de Correspondance Hellénique 17 (1896), pp. 523-548.
- Hopkins, K., 'On the probable age-structure of the Roman population', Population Studies 20 (1966), pp. 245-264.
- Hopkins, K., 'Economic growth and towns in classical antiquity', in P. Abrams and E. Wrigley (eds.), Towns in Societies, Cambridge 1978, pp. 35-79.
- Hopkins, K., 'Taxes and trade in the Roman empire', Journal of Roman Studies 70 (1980), pp. 101-125.

- Hopkins, K., "Models, ships and staples", P. Garnsey and C. R. Whittaker (eds.), Trade and Famine in Classical Antiquity, Cambridge: The Cambridge Philological Society 1983, pp. 84-109.
- Hopkins, K., 'Rome, taxes, rents and trade', Kodai: Journal of Ancient History 6/7 (1995-1996), pp. 41-75.
- Hopwood, K.R., 'Policing the hinterland', in S. Mitchell (ed.), Armies and Frontiers in Roman and Byzantine Anatolia, Proceedings of a Colloquium held at University College, Swansea, April 1981, BAR International Series 156, Oxford 1983, pp. 173-187.
- Howgego, C.J., 'Coinage and military finance: the imperial bronze coinage of the Augustan east', Numismatic Chronicle 142 (1982), pp. 1-20.
- Howgego, C., 'The behaviour and function of Greek Imperial Countermarks', Israel Numismatic Journal 6-7 (1982-1983), pp. 47-58.
- Howgego, C., Greek Imperial Countermarks, London: Royal Numismatic Society 1985.
- Howgego, C., 'Why did ancient states strike coins', Numismatic Chronicle 150 (1990), pp. 1ff.
- Howgego, C., 'The supply and use of money in the Roman world: 200 BC to AD 300', Journal of Roman Studies 82 (1992), pp. 1-31.
- Howgego, C., 'Coin circulation and the integration of the Roman economy', Journal of Roman Archaeology 7 (1994), pp.5-21.
- Howgego, Ancient History from Coins, London/ New York: Routledge 1995.

- Howgego, C., 'The circulation of silver coins, models of the Roman economy, and crisis in the third century AD: Some numismatic evidence', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World, The thirteenth Oxford Symposium on Coinage and Monetary History 25.-27.3.1993, Berlin: Mann 1996, pp.219-236.
- Huvelin, H., Christol, M. and G. Gautier (eds.), Mélanges de Numismatique offerts à Pierre Bastien à l' occasion de son 75e anniversaire, Wetteren-Belgium: Editions NR 1987.
- Huvelin, H., 'Découverte a Troyes sous Louis XV d' un trésor de monnaies d' or Romaines', Revue Numismatique, ser. 6, 31 (1989), pp. 113 ff.
- Huvelin, H. and Lorient, X., 'Les trouvailles de monnaies d' or dans l' occident romain au IIIe siècle de notre ère', in C. Brenot and X. Lorient, L' or monnaie III. Trouvailles de monnaies d' or dans l' occident romain. Cahiers Ernest-Babelon, 4, Paris: Centre National de la Recherche Scientifique 1992, pp.215-272.
- Ιατρίδου, Ε., 'Επιμελητεία Βυζαντινών αρχαιοτήτων Βόλου', Αρχαιολογικόν Δελτίον 31 (B1-B2) 1976.
- Isaak, B., 'An open frontier', in B. Isaak (ed.), The Near East under Roman Rule: Selected Papers, Leiden: Brill 1998.
- Johnson, A.C., Coleman-Norton, P.R., Bourne, F.C., Ancient Roman Statutes, Texas: University of Texas Press 1961.
- Johnston, A., 'Review article: New problems for old, Konrad Kraft on die-sharing in Asia Minor' Numismatic Chronicle, 7th series, 14 (1974), pp. 203-207.

- Johnston, A., 'Die sharing in Asia Minor: The view from Sardis', Israel Numismatic Journal 6-7 (1982-1983), pp. 59-78.
- Johnston, A., 'Greek Imperial statistics: A commentary', Revue Numismatique, 26 (1984), pp. 240-257.
- Johnston, A., 'The so-called "pseudo-autonomous" Greek Imperials', American Numismatic Society, Museum Notes 30 (1985), pp. 89-112.
- Johnston, A., 'Aphrodisias reconsidered', Numismatic Chronicle 155 (1995), pp.43-100.
- Johnston, A., 'Greek Imperial Denominations in the Province of Asia', in J. Nolle, B. Overbeck and P. Weiss (eds.), Nomismata 1: Internationales Kolloquium zur kaiserzeitlichen Münzprägung Kleinasiens, 27.-30 April 1994 in der Staatlichen Münzsammlung München, Milan: Ennerre 1997, pp. 205-219.
- Jones, A.H.M., 'Numismatics and history', in id (ed.), The Roman Economy: Studies in Ancient Economic and Administrative History, Oxford: Blackwell 1974, pp. 61-81.
- Jones, A.H.M., The Cities of the Eastern Roman Provinces, special edition, Oxford: Clarendon Press 1998.
- Jones, T.B., 'Greek Imperial coins', The Voice of the Turtle, vol.4, no. 12, Dec. 1965, pp. 295-301.
- Jones, T.B., 'A numismatic riddle: The so-called Greek Imperials', Proceedings of the American Philosophical Society, New York, vol. 107, no. 4, August 1967, pp. 308-347.

- Jones, C.P., 'The Roman World of Dio Chrysostom, Cambridge Mass.: Harvard University Press 1978.
- Jones, C.P., 'A follower of the god Glykon?', Epigraphica Anatolica 30 (1998), pp. 105-109.
- Jongman, W., The Economy and Society of Pompei, Amsterdam 1988.
- Kaimio, J., 'Notes on the pay of Roman soldiers', Arktos 9 (1975), pp.39-46.
- Kampmann, U., Die Homonoia Verbindungen der Stadt Pergamon oder der Versuch einer kleinasiatischen Stadt unter römischer Herrschaft eigenständige Politik zu betreiben, Saarbrücken 1996.
- Κανελλόπουλος, Α., Σύγχρονες οικονομικές σκέψεις των αρχαίων Ελλήνων: Η οικονομική εργογραφία, I, Athens: Livani 1996.
- Καραμεσίνη-Οικονομίδου, Μ., 'Νομίσματα ανασκαφών Θεσσαλίας', Θεσσαλικά 4 (1962), pp. 1 ff.
- Καραμεσίνη-Οικονομίδου, Μ., 'Νομίσματα ανασκαφών Φίλιας', Αρχαιολογικόν Δελτίον 19 (B2-B3) 1964, pp. 253 ff.
- Καραμεσίνη-Οικονομίδου, Μ., 'Μια μαρτυρία δια την κάθοδον των Ερούλων εις την Σπάρτην το 267 μ.Χ.', in Χαριστήριον εις Αναστάσιον Κ. Ορλάνδον, vol. 3, Athens 1966, pp. 376 ff.
- Καραμεσίνη-Οικονομίδου, Μ., 'Νομίσματα εκ του μουσείου του Βόλου', Θεσσαλικά 5 (1966), pp. 5 ff.
- Καραμεσίνη-Οικονομίδου, Μ., 'Συμβολή εις την μελέτην της νομισματοκοπίας της Νικοπόλεως', Αρχαιολογική Εφημερίς 1967, pp. 107 ff.

- Καραμεσίνη-Οικονομίδου, Μ., ‘Εύρημα Νικοπόλεως’, Αρχαιολογική Εφημερίς 1971, pp. 42 ff.
- Καραμεσίνη-Οικονομίδου, Μ., Η νομισματοκοπία της Νικοπόλεως, Αθήνα 1974.
- Karwiese, S., ‘Der Caesar MAXIMUS und die Homonoia AKMONEIA-EYMENEIA’, Numismatische Zeitschrift 86 (1971), pp. 40-42.
- Karwiese, S., ‘Vorausliste der ephesischen Fundmünzen 1983-1985’, Sonderabdruck aus dem Anzeiger der phil.-hist. Klasse der Österreichischen Akademie 1986, pp. 110 ff.
- Karwiese, S., Fundmünzen Ephesos 1986, 1989, pp. 105 ff.
- Kehoe, D., ‘Allocation of risk and investment on the estates of Pliny the Younger’, Chiron 18 (1988), pp. 15-42.
- Kehoe, D., ‘Investment in estates by upper-class landowners in Early Imperial Italy’, in H. Sancisi-Weerdenburg and H.C. Teitler (eds.), De Agricultura. In Memoriam P.W. de Neeve (1945-1990), Amsterdam: Gieben 1993, pp. 214-237.
- Kehoe, D., ‘Investimento e sicurezza del possesso nell’ affitto agrario romano’, in E. Lo Cascio, (ed.), Terre, proprietary e contadini dell’ impero Romano dall’ affitto agrario al colonato tardoantico, Naples: La Nuova Italia Scientifica 1997, pp. 61-73.
- Kennedy, D.L., Archaeological Explorations on the Roman Frontier in North-East Jordan: The Roman and Byzantine Military Installations and Road Network on the Ground and from the Air, BAR International Series 134, Oxford 1982.

- Kennedy, D.L., 'The garrisoning of Mesopotamia in the late Antonine and early Severan period', Antichthon 21 (1987), pp.57-66.
- Kennedy, D. and Riley, D., Rome's Desert Frontier from the Air, London: B.T. Batsford Limited 1990.
- Kennedy, D.L. (ed.), The Roman Army in the East, Journal of Roman Archaeology, Suppl. 18, Ann Arbor 1996.
- Kennedy, D., The Twin Towns of Zeugma on the Euphrates: Rescue Work and Historical Studies, Journal of Roman Archaeology, Suppl. 27, Portsmouth 1998.
- Kent, J.P.C., 'Interpreting coin-finds', in J. Casey and R. Reece (eds.), Coins and the Archaeologists, 2nd ed., Oxford: British Archaeological Reports 1974, pp. 184-200.
- Kienast, D., 'Die Homonoia Verträge in der römischen Kaiserzeit', Jahrbuch für Numismatik und Geldgeschichte 14 (1964), pp. 51-64.
- King, C.E., 'The role of gold in the later third century AD', Rivista Italiana di Numismatica 95 (1993), pp. 439-451.
- King, C.E. and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World: The thirteenth Oxford Symposium on Coinage and Monetary History 25. – 27. 3. 1993, Berlin: Mann 1996.
- Kinns, 'The Amphictionic coinage reconsidered', Numismatic Chronicle 143 (1983), pp. 1-22.
- Kirkman, J.S., 'The evidence of the coins', in J.W. Crowfoot, G.M. Crowfoot and K.M. Kenyon (eds.), The Objects from Samaria, pp. 43 ff.

- Kirschenbaum, A., Sons, Slaves and Freedmen in Roman Commerce, Jerusalem/ Washington D.C.: Magnes Press/ Catholic University of America Press 1987.
- Kizilkaya, Y., 'Sulakyurt definesi', Türk Arkeoloji Dergisi XXV-1 (1980), pp. 103-133.
- Kizilkaya, Y., 'Yatagan definesi', Türk Arkeoloji Dergisi XXVII (1988), pp. 137-169.
- Kizilkaya, Y., 'The Sulakyurt Hoard', in C.S. Lightfoot (ed.), Recent Turkish Coin Hoards and Numismatic Studies, Oxford: Oxbow 1991.
- Kizilkaya, Y., 'The Yatagan Hoard', in C.S. Lightfoot (ed.), Recent Turkish Coin Hoards and Numismatic Studies, Oxford: Oxbow 1991, pp. 249 ff.
- Klose, D.O.A., 'As und Assarion: Zu den Nominalsystemen der lokalen Bronzemünzen im Osten des römischen Reiches', Jahrbuch für Numismatik und Geldgeschichte 36 (1986), pp. 101-105.
- Klose, D.O.A., Die Münzprägung von Smyrna in der römischen Kaiserzeit, Berlin 1987.
- Klose, D.O.A., 'Münzprägung und städtische Identität: Smyrna in der römischen Kaiserzeit', in W. Leschhorn, A.V.B. Miron and A. Miron (eds.), Hellas und der griechische Osten: Studien zur Geschichte und Numismatik der griechischen Welt, Festschrift für Peter Robert Franke zum 70 Geburtstag, Saarbrücken 1996, pp. 53-63.
- Kraft, K., 'S(enatus) C(onsulto)', Jahrbuch für Numismatik und Geldgeschichte 1962, pp. 7-49.

- Kraft, K., Das System der kaiserzeitlichen Münzprägung in Kleinasien, Berlin 1972.
- Kraay, C.M., Archaic and Classical Greek Coins, London: Methuen 1976.
- Κρεμμύδη- Σισυλιάνου, Σ., Η νομισματοκοπία της ρωμαϊκής επαρχίας του Δίου, Αθήνα, Ελληνική Νομισματική Εταιρία 1996.
- Kroll, J.H., 'The Eleusis Hoard of Athenian Imperial coins and some deposits from the Athenian Agora', Hesperia 42 (1973), pp. 317 ff.
- Kroll, J.H., The Athenian Agora. The Greek Coins, XXVI, Princeton: The American School of Classical Studies at Athens 1993.
- Kroll, J.H., 'Hemiobols to assaria: the bronze coinage of Roman Aigion', Numismatic Chronicle 156 (1996), pp. 49-78.
- Kryzanowska, A., Monnaies coloniales d' Antioche de Pisidie, Warsovie: Editions scientifiques de Pologne 1970.
- Lagos, C., The Circulation of Coins in Lycia, MA thesis, Durrham 1993.
- Λαζαρίδης, Π., 'Ανασκαφή Φθιωτίδων Θηβών', Αρχαιολογικόν Δελτίον 18 (B1) 1963.
- Laing, L.R., Coins and Archaeology, London: Weidenfeld & Nicolson 1969.
- Lauritsen, F.M., Some Greek Imperial Coins from Southeastern Asia Minor, diss. Ph.D., Minesota 1973.
- Leschhorn, W., 'Le monnayage impérial d' Asie Mineure et la statistique', C. Carcassonne and T. Hackens (eds.), Statistics and Numismatics, PACT 5, Paris 17-19 Sept. 1979, Strasbourg 1981, pp. 252-266.

- Leschhorn, W., 'Die kaiserzeitlichen Münzen Kleinasien: Zu den Möglichkeiten und Schwierigkeiten ihrer statistischen Erfassung', Revue Numismatique 27 (1985) pp. 200-216.
- Leschhorn, W., Miron, V.B. and A. Miron (eds.), Hellas und der griechische Osten: Studien zur Geschichte und Numismatik der griechischen Welt. Festschrift für Peter Robert Franke zum 70. Geburtstag, Saarbrücken: SDV Saarbrücker Druckerei und Verlag GmbH 1996.
- Leveau, P. and C. Goudineau, 'La ville antique: "ville de consommation?"', Etudes Rurales, 89-91 (1983), pp. 275-289.
- Levy, B.E., 'Indulgentiae Augusti Moneta Inpetrata: A Flavian episode', H. Huvelin, M. Christol and G. Gautier (eds.), Mélanges de Numismatique offerts à Pierre Bastien à l'occasion de son 75e anniversaire, Wetteren-Belgium: Editions NR 1987, pp. 39-49.
- Lewis, N., 'Three textual notes on the new *Monumentum Ephesinum*', Zeitschrift für Papyrologie und Epigraphik 107 (1995), p. 248.
- Liebeschuetz, J.H.W.G., Antioch: City and Imperial Administration in the Later Roman Empire, Oxford: Clarendon Press 1972.
- Lightfoot C.S., (ed.), Recent Turkish Coin Hoards and Numismatic Studies, Oxford: Oxbow 1991.
- Lind, L., 'The Monetary Reforms of Nero, Domitian and Septimus Severus and the Finds of Roman Denarii in Eastern and Northern Europe', in T. Hackens, G. Moucharte et al. (eds.), Proceedings of the XIth International Numismatic Congress, Brussels, September 8th-13th 1991, Louvain-la-Neuve 1993, pp. 289-295.

- Lo Cascio, E., 'The size of the Roman population: Beloch and the meaning of the Augustan census figures', Journal of Roman Studies 84 (1994), pp. 23-40.
- Lo Cascio, E. (ed.), Terre, proprietari e contadini dell' impero Romano dall' affitto agrario al colonato tardoantico, Naples: La Nuova Italia Scientifica 1997.
- Lo Cascio, E., 'Prezzi in oro e prezzi in unita di conto tra il III e il IV sec. d.C.', in J. Andreau, P. Briant and R. Descat (eds.), Economie antique: Prix et formation des prix les economies antiques, Entretiens d' archaeologie et d' histoire, Saint- Bertrand-de-Comminges 1997, pp. 161-182.
- Lockyear, K., A Statistical Analysis of Roman Republican Coin Hoards with Special Reference to Material from Romania, Ph. D. thesis, London 1996.
- Lockyear, K., 'Hoard structure and coin production in antiquity – an empirical investigation', Numismatic Chronicle 159 (1999), pp. 215-243.
- Lorient, X., 'Trouvailles isolées de monnaies d' or romaines dans la province de Retie', in P. Kos and Z. Demo (eds.), Studia Numismatica Labacensia Alexandro Jelocnik Oblata, Ljubljana 1988, pp. 53-998.
- MacDonald, D., 'The *Homonoia* of Colossae and Aphrodisias', Jahrbuch für Numismatik und Geldgeschichte 33 (1983), pp. 25-27.
- MacDonald, D., 'A Greek Imperial hoard of Alexandria Troas', Numismatic Chronicle 147 (1987), pp. 158-160.
- MacDonald, D., The Coinage of Aphrodisias, London: Royal Numismatic Society, Special Publication 23, 1992.
- MacDonald, G., Catalogue of Greek Coins in the Hunterian Collection, vol. II, Glasgow, 1901.

- MacMullen, R., 'Roman imperial building in the provinces', Harvard Studies in Classical Philology 64 (1959) pp. 207-216.
- MacMullen, R., 'Imperial bureaucrats in the Roman provinces', Harvard Studies in Classical Philology 68 (1964), pp. 305-316.
- MacMullen, R., 'How big was the Roman imperial army', Klio 62 (1980), pp. 451-460.
- MacMullen, R., 'The Roman emperor's army cost', Latomus 43 (1984), pp. 570-580.
- Macro, A.N., 'Imperial Provisions for Pergamum: OGIS 484', Greek, Roman and Byzantine Studies 17 (1976), pp. 169-179.
- Magie, D., Roman Rule in Asia Minor, Princeton: Princeton University Press 1950.
- Maier, G., Cyprus: From the Earliest time to the Present Day, London: Elek Books Ltd 1968.
- Martin, T.R., Sovereignty and Coinage in Classical Greece, Princeton: Princeton University Press 1985.
- Martin, T., 'Why did the Greek 'polis' originally need coins?', Historia 45 (1996), pp. 257-283.
- Martini, R. and N. Vismara (eds.), in Glaux: Collana di Studi e Ricerche di Numismatica, Ermanno A. Arslan Studia Dicata, Milan 1991.
- Martini, R. and Winsemann Falghera, E., 'Emissioni di *homonoia* tra Ephesus e Smyrna di Antoninus Pius', Annotazioni Numismatiche 5 (1992), pp. 87-90.

- Mattern, S.P., Rome and the Enemy: Imperial Strategy in the Principate, Berkeley/Los Angeles/London: University of California Press 1999.
- Matthews, J.F., 'The Tax Law of Palmyra: Evidence for Economic History in a City of the Roman East', Journal of Roman Studies 74 (1984), pp. 157-180.
- Mattingly, H., Coins of the Roman Empire in the British Museum, I, Augustus to Vitellius, London: Trustees of the British Museum 1923.
- Mattingly, H., 'Hoards of Roman coins found in Britain and a coin survey of the Roman province', Journal of Roman Studies 22 (1932), p. 88-95.
- Mattingly, H., Coins of the Roman Empire in the British Museum, II, Vespasian to Domitian, London: Trustees of the British Museum 1930.
- Mattingly, H., Coins of the Roman Empire in the British Museum, III, Nerva to Hadrian, London: Trustees of the British Museum 1936.
- Mattingly, H., Coins of the Roman Empire in the British Museum, IV, Antoninus Pius to Commodus, London: Trustees of the British Museum 1940.
- Mattingly, H., Coins of the Roman Empire in the British Museum, V, Pertinax to Elagabalus, London: Trustees of the British Museum 1950.
- Mattingly, H., Roman Coins: From the Earliest Times to the Fall of the Western Empire, 2nd ed., London: Methuen 1960.
- Mattingly, D.J., 'Beyond belief? Drawing a line beneath the consumer city', in H.M. Parkins (ed.), Roman Urbanism: Beyond the Consumer City, London: Routledge 1997, pp. 210-218.

- Maxfield, V.A. and M.J. Dobson (eds.), Roman Frontier Studies, Proceedings of the XVth International Congress of Roman Frontier Studies, University of Kent 1989, Exeter: University of Exeter Press 1991.
- McAlee, R.G., 'The Severan tetradrachms of Laodicea', American Numismatic Society: Museum Notes 29 (1984), pp. 43-59.
- McGing, B.C., 'The Ephesian customs law and the Third Mithridatic War', Zeitschrift für Papyrologie und Epigraphik 109 (1995) pp. 283-288.
- Meijer, F. and van Nijf, O., Trade, Transport and Society in the Ancient World: A Sourcebook, London/New York: Routledge 1992.
- Melville Jones, J.R., 'Asses and Assaria in the Early Roman Empire', Bulletin of the Institute of Classical Studies, University of London 18 (1971), pp.99-105.
- Melville-Jones, J.R., 'Epigraphical notes on Hellenistic bronze coinage', Numismatic Chronicle 132 (1972), pp. 39-43.
- Merola, G., 'Il *Monumentum Ephesinum* e l' organizzazione territoriale delle regioni asiatiche', *MEFRA* 108 (1996) pp. 263-297.
- Meshorer, Y., 'A hoard of coins from Migdal', Atiqot 11 (1976), pp. 54-71.
- Metcalf, W.E., 'The Tell Kalak Hoard and Trajan's Arabian mint', American Numismatic Society, Museum Notes 20 (1975), pp. 39-108.
- Metcalf, W.E., 'The Antioch Hoard of *antoniniani* and the eastern coinage of Trebonianus Gallus and Volusian', American Numismatic Society, Museum Notes 22 (1977), pp. 71-94.

- Metcalf, W.E., The Cistophori of Hadrian, The American Numismatic Society, Numismatic Studies 15, New York, 1980.
- Metcalf, W.E., 'The Flavians in the East', in T.Hackens and R. Weiller (eds.), Proceedings of the ninth International Congress of Numismatics, Berne, September 1979, Louvain-la-Neuve/Luxemburg 1982, pp. 328 ff.
- Metcalf, W.E., 'The Severan «cistophori»', Rivista Italiana di Numismatica e Scienze Affini 90 (1988), pp.155-166.
- Metcalf, W.E., The Silver Coinage of Cappadocia, Vespasian-Commodus, New York: American Numismatic Society 1996.
- Michailowski, K., Palmyra: Fouilles Polonaises 1961, Warszawa: Panstwowe Wydawn 1963.
- Michailowski, K., Palmyra: Fouilles Polonaises 1962, Warszawa: Panstwowe Wydawn 1964.
- Michailowski, K., Palmyra: Fouilles Polonaises 1963 et 1964, Warszawa: Panstwowe Wydawn 1966.
- Milik, J.T. and H Seyrig, 'Tresor monétaire de Muraba'at', Revue Numismatique, 6th ser., 1 (1958), pp. 41 ff.
- Millar, F., The Emperor in the Roman World, London: Duckworth 1977.
- Millar, F., 'The world of golden ass', Journal of Roman Studies, 71 (1981), pp. 63-75.
- Millar, F., 'Caravan cities: The Roman Near East and long-distance trade by land', in M. Austin, J. Harries and C. Smith (eds.), Modus Operandi: Essays in

Honour of Geoffrey Rickman, BICS Suppl. 1998 (Institute of Classical Studies, University College London), pp. 119-137.

- Mitchell, S., 'The Balkans, Anatolia, and Roman armies across Asia Minor', in S. Mitchell (ed.), Armies and Frontiers in Roman and Byzantine Anatolia: Proceedings of a Colloquium held at University College, Swansea, in April 1981, British Institute of Archaeology at Ankara, Monograph No. 5, BAR International Series 156, Oxford 1983, pp. 131-150.
- Mitchell, S. (ed.), Armies and Frontiers in Roman and Byzantine Anatolia, Proceedings of a Colloquium held at University College, Swansea, April 1981, BAR International Series 156, Oxford 1983.
- Mitchell, S., Anatolia: Land, Men and Gods in Asia Minor, Oxford: Clarendon Press 1993.
- Mitchell, S., Cremna in Pisidia: An Ancient City in Peace and in War, London: Duckworth 1995,
- Miron, A.V.B., 'Alexander von Abonuteichos: Zur Geschichte des Orakels des Neos Asklepios Glykon', in W. Leschhorn, V.B. Miron and A. Miron (eds.), Hellas und der griechische Osten: Studien zur Geschichte und Numismatik der griechischen Welt. Festschrift für Peter Robert Franke zum 70. Geburtstag, Saarbrücken: SDV Saarbrücker Druckerei und Verlag GmbH 1996, pp. 152-188.
- Mocsy, A., Pannonia and Upper Moesia: A History of the Middle Danube, Provinces of the Roman Empire, transl. ed. by Sheppard Frere, London/Boston: Routledge 1974.
- Mørkholm, O., Early Hellenistic Coinage: From the Accession of Alexander to the Peace of Apamea (336-188 BC), Cambridge: Cambridge University Press 1991.

- Mouchmov, N.A., Le grant trésor numismatique de Reka Denvia (Marcianopolis), Sofia, 1939.
- Neesen, L., Untersuchungen zu den direkten Staatsabgaben der römischen Kaiserzeit, Bonn: Habelt 1980.
- Negev, A., 'The Mempsis (Kurnub) Hoard of Roman and Provincial silver: A preliminary note', Israel Journal of Numismatics 3 (1966), pp. 27-31.
- Nicolet, C., 'Le *Monumentum Ephesinum* et les dîmes d' Asie', Bulletin de Correspondance Hellénique 115 (1991), pp. 465-480.
- Nicolet, C., 'Le *Monumentum Ephesinum* et la delimitation du *portorium* d' Asie', MEFRA 105 (1993), pp. 929-1059.
- Nollé, J., 'Städtisches Prägerecht und Römische Kaiser: Suchten die Städte Kleinasiens beim römischen Kaiser um das Recht nach Bronzemünzen zu prägen? Überlegungen zu dem Formular αἰτησάμενου τοῦ δεῖνος', Rivista Italiani di Numismatica 95 (1993) pp.487-504.
- Nollé, J., Overbeck, B. and P. Weiss (eds.), Nomismata 1: Internationales Kolloquium zur kaiserzeitlichen Münzprägung Kleinasiens, 27.-30 April 1994 in der Staatlichen Münzsammlung München, Milan: Ennerre 1997.
- Okamura, L., 'The flying columns of emperor Gallienus: "Legionary" coins and their hoards', in V.A. Maxfield and M.J. Dobson (eds.), Roman Frontier Studies, Proceedings of the XVth International Congress of Roman Frontier Studies, University of Kent 1989, Exeter: University of Exeter Press 1991, pp. 387-391.
- Okamura, L., 'Coin hoards and frontier forts: Problems of interpretation', in H. Vetters and M. Kandler, Akten des 14 Internationalen Limeskongresses

1986 in Carnuntum: Der römische Limes in Österreich, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1990, pp.45-47.

- Oliver, J.H., Greek Constitutions, ed. by K. Clinton, Philadelphia: American Philosophical Society 1989.
- Osborne, R., 'Pots, trade and the archaic economy', Antiquity 70 (1996), pp. 31-44.
- Papaeuthymiou, E., Edessa en Macedoine: Etude historique et numismatique, Ph.D. thesis, Paris 1994
- Patterson, C.C., 'Silver stocks and losses in Ancient and Medieval times', The Economic History Review, ser. 2, 25 (1972), pp. 205 ff.
- Patterson, J., 'Trade and traders in the Roman world: scale, structure, and organisation', in H. Parkins and C. Smith (eds.), Trade, Traders and the Ancient City, London/ New York: Routledge 1998, pp. 149-167.
- Parker, A.J., Ancient Shipwrecks of the Mediterranean and the Roman Provinces, Oxford: Tempus Reparatum 1992.
- Parkin, T.G., Demography and Roman Society, John Hopkins University Press: Baltimore/London 1992.
- Parkins, H., 'The 'consumer city' domesticated? The Roman city in elite economic strategies', in H.M. Parkins (ed.), Roman Urbanism: Beyond the Consumer City, London: Routledge 1997, pp. 83-111.
- Parkins, H.M. (ed.), Roman Urbanism: Beyond the Consumer City, London: Routledge 1997.

- Parkins, H. and C. Smith (eds.), Trade, Traders and the Ancient City, London/ New York: Routledge 1998.
- Paul, G.M. (ed.), Roman Coins and Public Life under the Empire: E. Togo Salmon Papers, II, Ann Arbor: University of Michigan Press 1999.
- Pekáry, T., 'Studien zur römischen Währungs-und Finanzgeschichte von 161 bis 235 n.Chr.', Historia 8 (1959), pp. 443-489.
- Percival, J., 'The villa in Italy and the provinces', in J. Wachter (ed.), in The Roman World, London/Boston: Routledge 1987, pp. 527-552.
- Πετράκος, Β.Χ., 'Αρχαιότητες και μνημεία Φθιώτιδος και Φωκίδος', Αρχαιολογικόν Δελτίον 27 (Β2) 1972.
- Pleket, H.W., 'Urban elites and business in the Greek part of the Roman empire', in P. Garnsey, K. Hopkins and C.R. Whittaker (eds.), Trade in the Ancient Economy, London: Hogarth Press 1983, pp. 131-144.
- Pleket, von H.W., 'Urban elites and the economy in the Greek cities of the Roman empire', Münstersche Beiträge zur antiken Handelsgeschichte, III 1, (1984), pp. 24ff.
- Pleket, H.W., Supplementum Epigraphicum Graecum 39, 1989 (1992).
- Pleket, H.W., 'Models and inscriptions: exports of textiles in the Roman empire', Epigraphica Anatolica 30 (1998), pp. 117-128.
- Pollard, N., 'The Roman army as «total institution», in D.L. Kennedy (ed.), The Roman Army in the East, Journal of Roman Archaeology, Suppl. 18, Ann Arbor 1996, pp. 211-227.

- Price, M.J., 'Coins from some deposits in the South Stoa at Corinth', Hesperia 36 (1967), pp. 348-388.
- Price, S., Rituals and Power, Cambridge/ New York: Cambridge University Press 1984.
- von Prott, H., 'Roemischer Erlass betreffend die oeffentliche Bank von Pergamon', Athenische Mitteilungen 27 (1902), pp. 78-89.
- Pucci, G., 'Pottery and trade in the Roman period', in P. Garnsey, K. Hopkins and C.R. Whittaker (eds.), Trade in the Ancient Economy, London: Hogarth Press 1983, pp. 105-117.
- Raskolnikoff, M., 'La richesse et les riches chez Cicéron', Ktema 2 (1977), pp. 357-372.
- Rathbone, D., Rationalism and Rural Society in Third Century AD Egypt, Cambridge/New York/Portchester/Melbourne/Sydney: Cambridge University Press 1991.
- Rathbone, D., 'Monetization, not price-inflation, in third century A.D. Egypt?', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World: The Thirteenth Oxford Symposium on Coinage and Monetary History, 25.-27.3.1993, Berlin: Mann 1996, pp.321- 339.
- Rathbone, D., 'Prices and price formation in Roman Egypt', in J. Andreau, P. Briant and R. Descat (eds.), Economie antique: Prix et formation des prix les economies antiques, Entretiens d' archaeologie et d' histoire, Saint- Bertrand-de-Comminges 1997, pp. 183-244.
- Ravetz, A., ' The fourth-century inflation and Romano-British coin finds', Numismatic Chronicle, ser. 7, (1964), pp. 201-231.

- Rebuffat, F., 'Le trésor d' Ayvagedigi', in M. Amandry and G. Le Rider (eds.), Trésors et circulation monétaire en Anatolie antique, Paris: Bibliothèque Nationale de France, pp. 73-118.
- Reece, R., 'Clustering of coin finds in Britain, France and Italy', in P.J. Casey and R. Reece (eds.), Coins and the Archaeologist, British Archaeological Reports, Oxford 1974.
- Reece, R., 'The «normal» hoard', in C. Carcassone and T. Hackens (eds.), PACT: Statistics and Numismatics 5, Strasbourg 1981, pp. 299-208.
- Reece, R., 'Economic history from Roman site-finds', in T. Hackens and R. Weiller (eds.), Proceedings of the 9th International Congress of Numismatics, Berne 1979, Louvain-la-Neuve 1982, pp. 495-502.
- Reece, R., Coinage in Roman Britain, London: Seaby 1987.
- Reece, R., Roman Coins from 140 Sites in Britain, Cirencester: Cotswold Studies 1991.
- Reece, R., 'British sites and their Roman coins', Antiquity, 67 (1993), pp. 863-869.
- Reece, R., 'Site finds in Roman Britain', Britannia, 26 (1995), pp. 178-191.
- Reece, R., 'The interpretation of site finds: A review', in C.E. King and D.G. Wigg (eds.), Coin Finds and Coin Use in the Roman World: The Thirteenth Oxford Symposium of Coinage and Monetary History, 25-27, 3, 1993, Berlin 1996.
- Rich, J. and A. Wallace-Hadrill (eds.), City and Country in the Ancient World, Leicester-Nottingham Studies in Ancient Society 2, London 1991.

- Robert, L., Études épigraphiques et philologiques, Paris: Champion 1938.
- Robert, L., 'Αἰτησάμενος sur les monnaies', Hellenica: Récueil d' epigraphie de numismatique et d' antiquities grecques, 11/12, Limoges: A. Bontemps 1960, pp. 53-62.
- Robert, L., Monnaies antiques en Troade, Geneva/Paris 1966.
- Robert, L., Monnaies grecques: Types, legends, magistrates monétaires et géographie, Geneva/Paris: Droz 1967.
- Robertson, A.S., 'Romano-British coin hoards; their numismatic, archaeological and historical significance', in J. Casey and R. Reece (eds.), Coins and the Archaeologist, 2nd ed., British Archaeological Reports, Oxford 1974, pp. 12-36.
- Robinson, O.F., Ancient Rome: City Planning and Administration, London/New York: Routledge 1992.
- Rodewald, C., Money in the Age of Tiberius, Manchester: Manchester University Press 1976.
- Rosenthal-Heginbottom, R., 'The Mampsis Hoard: A preliminary report', Israel Journal of Numismatics 4 (1980), pp. 39ff.
- Rotroff, S.I., 'Coins and stratigraphy', in K.A. Sheedy and Ch. Papageorgiadou-Banis (eds.), Numismatic Archaeology, Archaeological Numismatics: Proceedings of an International Conference held to Honour Dr. Mando Oeconomides in Athens 1995, Oxford: Oxbow (for) the Australian Archaeological Institute at Athens 1996, pp. 8-16.
- Ruggini, L.G., Economia e Societa nell' Italia Annonaria: Rapporti fra agricoltura e commercio dal IV al VI s.d. C., Milan: Giuffrè 1961.

- Salamon, M., 'Causes of disappearance of city-mints in Asia Minor in the second half of the 3rd century AD', Wiadomosci Numizmatyczne, 14 (1970), pp. 146-162.
- Salomies, O., 'Zu einigen Stellen im Zollgesetz der Provinz Asia', Zeitschrift für Papyrologie und Epigraphik 86 (1991), pp. 184-186.
- Sancisi-Weerdenburg, H. and H.C. Teitler (eds.), De Agricultura. In Memoriam P.W. de Neeve (1945-1990), Amsterdam: Gieben 1993.
- Sanders, H., (ed.), Roman History and Mythology, Ann Arbor: University of Michigan Press 1910.
- Savio, A., 'La numismatica e I problemi quantitative: intorno al calcolo del volume delle emissioni', Rivista Italiana di Numismatica e Scienze Affini 98 (1997), pp. 11-48.
- Scheidel, W., Measuring Sex, Age and Death in the Roman Empire: Explorations in Ancient Demography, Ann Arbor: Journal of Roman Archaeology 1996.
- Schmidt-Dick, F., Die Fundmünzen der römischen Zeit in Österreich, II/3, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1989.
- Schönert, E., Griechisches Münzwerk: Die Münzprägung von Perinthos, Berlin: Akademik Verlag 1965.
- Schönert-Geiss, E., Die Münzprägung von Byzantion: Die Kaiserzeit, II, Berlin 1972.
- Schönert-Geiss, E., Griechisches Münzwerk: Die Münzprägung von Maroneia, Berlin: Akademik Verlag 1987.

- Schönert-Geiss, E., Griechisches Münzwerk: Die Münzprägung von Augusta Traiana and Traianopolis, Berlin: Akademik Verlag 1991.
- Sevin, V. and Derin, Z., 'A fortified site to the east of Malatya', in D.H. French and C.S. Lightfoot (eds.), The Eastern Frontier of the Roman Empire, Proceedings of a Colloquium Held at Ankara in September 1988, ii, British Institute of Archaeology at Ankara, Monograph No. 11, BAR International Series 553 (ii), Oxford 1989, pp.437-460.
- Seyrig, H., 'Antiquités Syriennes: Les trouvailles de monnaies péloponésiennes en Syrie', Syria 34 (1957) pp. 249-259.
- Shear, T.L., 'A hoard of coins found in the theatre district of Corinth in 1930', American Journal of Archaeology 35 (1931), pp. 139 ff.
- Sheedy, K.A. and Ch. Papageorgiadou-Banis (eds.), Numismatic Archaeology, Archaeological Numismatics: Proceedings of an International Conference held to Honour Dr. Mando Oeconomides in Athens 1995, Oxford: Oxbow (for) the Australian Archaeological Institute at Athens 1996.
- Scheers, S., 'Catalogue of the coins found during the years 1990 and 1991', in M. Waelkens (ed.), Sagalassos I, First General Report on the Survey (1986-1989) and Excavations (1990-1991), Acta Archaeologica Lovaniensia Monographiae 5, Leuven: Leuven University Press 1993, pp. 197 ff.
- Scheers, S., 'Catalogue of the coins found in 1992', in M. Waelkens and J. Poblome (eds.), Sagalassos II, Report on the Third Excavation Campaign of 1992, Acta Archaeologica Lovaniensia Monographiae 6, Leuven: Leuven University Press 1993, pp. 249 ff.
- Scheers, S., 'Catalogue of the coins found in 1993', in M. Waelkens (ed.), Sagalassos III, Report on the fourth Excavation Campaign of 1993, Acta

Archaeologica Lovaniensia Monographiae 7, Leuven: Leuven University Press 1995, pp. 307 ff.

- Sheppard, A.R.R., '*Homonoia* in the Greek cities of the Roman empire', Ancient Society 15-17 (1984-1986), pp. 229-252.
- Srydsgaard, J.E., 'Public building and society', in K. de Fine Licht (ed.), Citta e Architettura nella Roma Imperiale: Atti del Seminario del 27 Ottobre 1981 nel 25o anniversario dell' Academia di Danimarca, Analecta Romana Instituti Danici, Suppl. 10, Odense: Odense University Press 1983, pp.224-225.
- Smallwood, E.M., Documents Illustrating the Principates of Nerva, Trajan and Hadrian, Cambridge: Cambridge University Press 1966.
- Solin, H., 'Zum Zollgesetz der Provinz Asia', Zeitschrift für Papyrologie und Epigraphik 86 (1991), p. 183.
- Speidel, M.A., 'Roman army pay scales', Journal of Roman Studies 82 (1992), pp.87-106.
- Sperber, D., Roman Palestine, AD 200-400. Money and Prices, Ramat-Gan: Bar Ilan University Press 1974.
- Spijkerman, A. and J. Starcky, 'Un nouveau lot de monnaies palestiniennes', Revue Biblique 65 (1958), pp. 568 ff.
- Spijkerman, A., Cafarnao, III, Jerusalem: Fransiscan Print Press 1975.
- Stahl, M., Imperiale Herrschaft und provinziale Stadt, (Hypomnemata 52), Göttingen: Vandenhoeck & Ruprecht 1978.
- Stroud, R.S., 'The sanctuary of Demeter and Kore on the Acrocorinth', Hesperia 36 (1967), pp. 299-330.

- Sutherland, C.H.V., Olcay, N. and Merrington, K.E., The Cistophori of Augustus, London: Royal Numismatic Society 1970.
- Σβορώνος, Ι., Νομισματικόν εύρημα Ελευσίνος, Νομίσματα Αθηνών χαλκά ρωμαϊκά', Journal International d' Archeologie Numismatique, VII, 19 (1904), pp. 107-142.
- Sydenham, E.A., The Coinage of Caesarea in Cappadocia, New York: Attic Books 1978.
- Talbert, R.J.A., The Senate of Imperial Rome, Princeton: Princeton University Press 1984.
- Taner, S., 'Kultepe Sikkeleri 1967, 1973', Belleten 38 (1974), pp. 583-595.
- Taner, S., 'Kultepe Kazisinda Bulunan Sikkeler', Anadolu (Anatolia) 15 (1971), pp. 139-159.
- Tate, G., 'The Syrian countryside during the Roman era', in S.E. Alcock (ed.), The Early Roman Empire in the East, Oxbow Monograph 95, Oxford 1997, pp. 55-71.
- Tekin, O., 'Some Greek Imperial coins from Perge', Anadolu Arastirmalari 13 (1994), pp. 179-188.
- Thiele, W., 'Praegestaetten unter Severus Alexander', Journal international d' archeologie numismatique, 10 (1907), pp. 311-332.
- Thompsen, R., Hama. Fouilles et recherches de la fondation Carlsberg 1931-1938: The Greco Roman Coins, Copehagen: Nordisk Forlag 1948.

- Thompson, M., The Athenian Agora. Coins from the Roman through the Venetian Period, II, Princeton: The American School of Classical Studies at Athens 1954.
- Thornton, M.K. and R.L., Julio-Claudian Building Programs: A Quantitative Study in Political Management, Wauconda: Bolchazy-Carducci 1989.
- Todd, M. (ed.), Research on Roman Britain, 1960-1989, London: Society for the promotion of Roman studies 1989.
- Touratsoglou, I., 'The Koufalia Hoard of the third century Greek Imperials in the numismatic collection of the museum of Thessalonike', in Ancient Macedonian Studies of Charles F. Edson, Thessalonike: Institute for Balkan Studies 1981, pp. 315-325.
- Touratsoglou, I., Die Münzstätte von Thessalonike in der römischen Kaiserzeit, Berlin/ New York: De Gruyter 1988.
- Touratsoglou, I., The Coin Circulation in Ancient Macedonia, Athens: Ellenike Nomismatike Etairia 1993.
- Troxell, H.A., 'The coinage of the Lycian League', American Numismatic Society, Numismatic Notes and Monographs 162 (1982) pp. 227-234.
- Van Berchem, D., 'L' annone militaire est-elle un mythe?', in A. Chastagnol, C. Nicolet and H. van Effenterre (eds.), Armées et fiscalité dans le Monde Antique, Colloque National du Centre National de la Recherche Scientifique, au Centre Universitaire Tolbiac de Paris I, 14-16 Octobre 1976, Paris: Edition du Centre National de la Recherche Scientifique 1977, pp. 331-334.
- Varoucha, E., 'Musées d' Athenes', Bulletin de Correspondance Hellenique, 1954, p. 99.

- von Verboven, K., 'Caritas Nummorum. Deflation in the Late Roman Republic', Münstersche Beiträge zum antiken Handelsgeschichte 16 (1997), pp. 40-78.
- Vetters, H., 'Ephesos, Vorläufiger Grabungsbericht 1978', Sonderabdruck aus dem Anzeiger der phil.-hist. Klasse der Österreichischen Akademie 1979, pp. 132 ff.
- Vetters, H., 'Ephesos, Vorläufiger Grabungsbericht 1979', Sonderabdruck aus dem Anzeiger der phil.-hist. Klasse der Österreichischen Akademie 1980, pp. 262 ff.
- Vetters, H., 'Ephesos, Vorläufiger Grabungsbericht 1980', Sonderabdruck aus dem Anzeiger der phil.-hist. Klasse der Österreichischen Akademie 1981, pp. 154 ff.
- Vetters, H., 'Ephesos, Vorläufiger Grabungsbericht 1981', Sonderabdruck aus dem Anzeiger der phil.-hist. Klasse der Österreichischen Akademie 1982, pp. 86 ff.
- Vetters, H., 'Ephesos, Vorläufiger Grabungsbericht 1982', Sonderabdruck aus dem Anzeiger der phil.-hist. Klasse der Österreichischen Akademie 1983, pp. 123 ff.
- Vetters, H. and M. Kandler, Akten des 14 Internationalen Limeskongresses 1986 in Carnuntum: Der römische Limes in Österreich, Wien: Verlag der Österreichischen Akademie der Wissenschaften 1990.
- Voegtli, H., Die Fundmünzen aus der Stadtgrabung von Pergamon, Berlin/New York: De Gruyter 1993.

- Waage, D.B., Antioch on the Orontes, Greek, Roman, Byzantine and Crusader Coins, IV, part 2, Princeton: University Press London: Oxford Press the Hague 1952.
- Waldbaum, J.C., Metalwork from Sardis: The Finds through 1974, Cambridge/London: Harvard University Press 1983.
- Walker, D.R., The Metrology of the Roman Silver Coinage: From Augustus to Domitian, Part I, British Archaeological Reports, Suppl. Series 5, Oxford 1976.
- Walker, A., 'A hoard of Athenian imperial bronzes of the third century AD from eastern Attica', Coin Hoards, III, 1977, pp. 40 ff.
- Walker, A., 'Excavation coins: the use and misuse of numismatic evidence in archaeology', in K.A. Sheedy and Ch. Papageorgiadou-Banis (eds.), Numismatic Archaeology, Archaeological Numismatics: Proceedings of an International Conference held to Honour Dr. Mando Oeconomides in Athens 1995, Oxford: Oxbow (for) the Australian Archaeological Institute at Athens 1996, pp. 17-26.
- Wallace-Hadrill, A., 'The emperor and his virtues', Historia 30 (1981), pp. 295 ff.
- Wallace-Hadrill, A., 'Elites and trade in the Roman town', in J. Rich and A. Wallace-Hadrill (eds.), City and Country in the Ancient World, Leicester-Nottingham Studies in Ancient Society 2, London 1991.
- Walston, C., The Argive Heraeum, Boston: Mifflin 1902-1905.
- Wankel, H., 'Zum Zollgesetz der Provinz Asia §1', Zeitschrift für Papyrologie und Epigraphik 85 (1991), p. 40.

- Waterman, L., Preliminary Report of the University of Michigan Excavations at Sepphoris, Palestine, in 1931, Ann Arbor: University of Michigan Press 1937.
- Watson, G.R., 'The pay of the Roman army: The auxiliary forces', Historia 8 (1959), pp.372-378.
- Weber, M., Agraverhältnisse im Altertum, Tübingen 1909, The Agrarian Sociology of Ancient Civilizations, transl. in English, London 1976.
- Weiser, W., 'Ein Fund kaiserlicher Aes-Münzen aus Kibyra in Phrygien', Epigraphica Anatolica 3 (1984), pp. 101-117.
- Weiss, P., 'Zu Münzprägungen mit den Formulen *AITHΣAMENOY* und *EΙΣΑΝΓΕΙΛΑΝΤΟΣ*', E. Schwertheim (ed.), Studien zum antiken Kleinasien, II, Asia Minor Studien, vol. 8, Bonn 1992, pp. 167-179.
- West, L.C., 'Gold and Silver Coin Standards in the Roman Empire', American Numismatic Society, Numismatic Notes and Monographs 94, New York 1941.
- Whittaker, C.R., 'Trade and the aristocracy in the Roman empire', Opus, International Journal for Social and Economic History of Antiquity, 4 (1988), pp. 49-75.
- Whittaker, C. R., 'The 'consumer city' revisited: the *vicus* and the city', Journal of Roman Archaeology 3 (1990) pp. 110-118.
- Whittaker, C.R., 'Do theories of the ancient city matter?', in T.J. Cornell and H.K. Lomas (eds.), Urban Society in Roman Italy, London: University College London Press 1993, pp. 1-20.
- Winsemann Falghera, E., 'Un emissione di *homonoia* tra Ephesus e Tralleis di Lucius Verus', Annotazioni Numismatiche 2 (June 1991), pp. 18-21.

- Wiseman, C.K. and J.E. Fisher, 'Corinth 1970: Forum area', Hesperia 40 (1970), pp. 1-51.
- Wiseman, J., 'Excavations in Corinth. The Gymnasium area', Hesperia 38 (1969), pp. 64-106.
- Wood, J.T., 'Coins from Ephesos', American Numismatic Society 1938, pp. 385 ff.
- Woolf, G., 'The Roman urbanization of the East', in S.E. Alcock (ed.), The Early Roman Empire in the East, Oxbow Monograph 95, Oxford 1997, pp. 1-14.
- Wruck, W., Die syrische Provinzialprägung von Augustus bis Trajan, Stuttgart: Kohlhammer 1931.
- York, J., 'The Image of Philip the Arab', Historia 21 (1972), pp. 320-332.
- Ziegler, R., Kaiser, Heer und städtisches Geld: Untersuchungen zur Münzprägung von Anazarbos und anderer ostkilikischer Städte, Wien: Verlag der österreichische Akademie der Wissenschaften, Philosophische-historische Klasse, vol. 234, 1993.
- Ziegler, R., 'Civic coins and imperial campaigns', in D.L. Kennedy (ed.), The Roman Army in the East, Journal of Roman Archaeology, Suppl. 18, Ann Arbor 1996, pp. 119-227.